DOCUMENT RESUME

ED 326 016 EC 232 620

AUTHOR Lauritzen, Paul; Friedman, Stephen
TITLE CSPD Technical Manual: Procedures for Comprehensive Assessment of Educational Personnel Supply/Demand. 1990 Edition.
INSTITUTION Wisconsin Univ., Whitewater. Dept. of Special Education.
SPONS AGENCY Office of Special Education and Rehabilitative Services (ED), Washington, DC. Div. of Personnel Preparation.
PUB DATE 90
CONTRACT 6008730036
NOTE 59p.
PUB TYPE Guides - Non-Classroom Use (055) --

EDRS PRICE MF01/PC03 Plus Postage.
DESCRIPTORS Beginning Teachers; *Data Collection; *Disabilities; Educational Legislation; Elementary Secondary Education; Employment Opportunities; Employment Patterns; Faculty Mobility; Federal Legislation; Inservice Teacher Education; *Models; Needs Assessment; *Personnel Needs; Postsecondary Education; *Predictive Measurement; Special Education Teachers; Staff Development; State Programs; Teacher Employment; *Teacher Supply and Demand
IDENTIFIERS Education for All Handicapped Children Act

ABSTRACT

This manual presents procedures for collecting data to project personnel needs in the field of special education, addressing in part the Comprehensive System of Personnel Development requirements of Public Law 94-142. Implementation of the procedures identifies: areas of education that show need for additional teachers as well as areas of surplus; ages at which teacher attrition is most likely to occur and the rate of teachers attrition in different teaching fields; employment opportunities for newly trained teachers; the pool of newly prepared teachers available for positions; the efficacy of employing teachers who are not fully certified; the differences between rural and urban education services; the need for and availability of teachers with minority backgrounds; a profile of the sources of all newly hired teachers in the state; the age, gender, and educational level of all newly hired teachers; and information for assessing the reserve pool of teachers available to fill existing vacancies. The majority of the data required can, in most cases, be generated from the state education agency's computerized database. The manual provides a rationale for use of the model, guidelines on application of the personnel assessment procedures, and guidelines on assessment of inservice needs. (12 references) (JDD)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

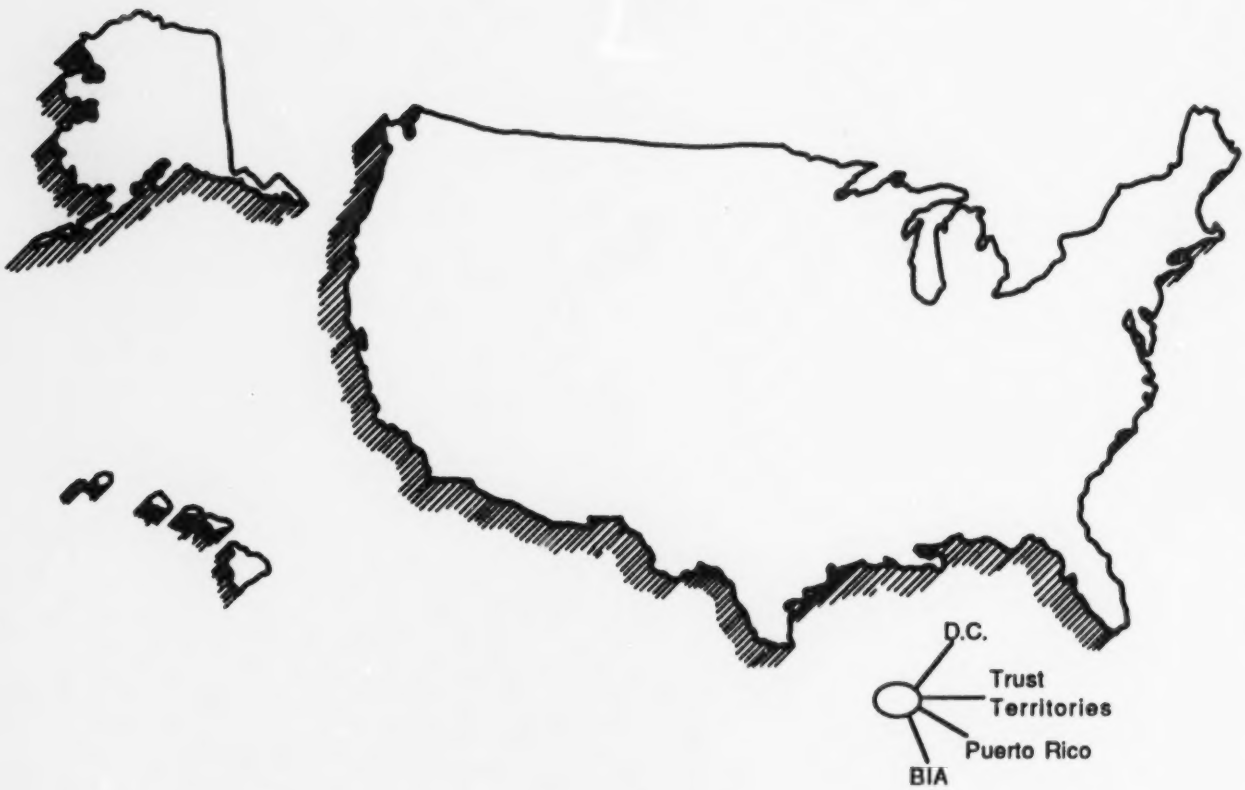
ED326016

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☒ This document has been reproduced as received from the person or organization originating it
☐ Minor changes have been made to improve reproduction quality
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy

CSPD TECHNICAL MANUAL:

PROCEDURES FOR COMPREHENSIVE ASSESSMENT OF EDUCATIONAL PERSONNEL SUPPLY/DEMAND

1990 Edition



Prepared by:
CSPD Special Project
University of Wisconsin - Whitewater
Whitewater, WI 53190

EC 232620

CSPD TECHNICAL MANUAL:

PROCEDURES FOR COMPREHENSIVE ASSESSMENT OF EDUCATIONAL PERSONNEL SUPPLY/DEMAND

1990 Edition

PREPARED FOR

OFFICE OF SPECIAL EDUCATION AND REHABILITATION SERVICES

This document addresses in part the Comprehensive System of Personnel Development requirement of P.L. 94-142. Information about this manual and technical assistance in following procedures included in this document can be obtained by contacting:

The CSPD Assessment Project
Department of Special Education
University of Wisconsin - Whitewater
Whitewater, WI 53190
(414) 472-1660

Funding for this project was provided by a Federal Special Project (Grant No. 6008730036) titled, "Comprehensive Assessment of Service Needs for Special Education."

Principal Investigator
Paul Lauritzen

Research Associate
Stephen Friedman

ACKNOWLEDGEMENTS

The project which is the subject of this technical manual was supported by a Federal Special Project Grant No. 6008730036 from the Division of Personnel Preparation, Special Education Programs, U.S. Department of Education. However, the opinions herein do not necessarily reflect the opinion or policy of the U.S. Department of Education, and no official endorsement by the U.S. Department of Education should be inferred.

This project is the result of the cooperation and dedication of several people who have contributed their time and expertise to this manual as it was developed. We are especially grateful to the Comprehensive System of Personnel Development (CSPD) coordinators and data staff from the states who worked with us on this project during the past three years and have given valuable input on the manual. Participating states include Alabama, California, Florida, Kansas, Kentucky, Illinois, Indiana, Iowa, Michigan, Minnesota, New Hampshire, Texas, Vermont, Washington, and Wisconsin. Special appreciation is extended to Don Blodgett, Project Officer, for his continued support and encouragement. In addition, we would like to recognize Judy Smith-Davis and Linda Metzke, consultants to this project. They have provided insight, assistance, support, and cooperation. We also wish to acknowledge the collaboration with the National Association of State Directors of Special Education (NASDSE) which has enhanced this project in innumerable ways.

The development of the technology to project personnel needs in education has rapidly evolved with greater dependence on computer-generated data. In the effort to keep this manual brief and readable, only a limited discussion of the rationale behind each procedure is provided. It is the intent of this project to provide technical assistance to states in the implementation of data collection procedures. Please feel free to address suggestions, concerns, or requests to:

CSPD Project
Department of Special Education
University of Wisconsin - Whitewater
Whitewater, WI 53190
(414) 472-1660

PREFACE

The current edition of this manual has undergone substantial revision since the first printing in 1988. These revisions clarify procedures and provide expanded areas of investigation while remaining as user friendly as possible. The following are important features of this manual:

1) The new hires model described here can be applied across all areas of education. This enables state decision makers to evaluate the needs in special education against the teaching fields in general education. This approach provides a comprehensive information base on the supply/demand for all teachers in a given state.

2) The model has been applied in the analysis of teacher personnel needs in several states. This application has provided the basis for the validation of the design, the refinement of the methodology, and the availability of sample studies for review.

3) Actual data from a variety of states has been used to illustrate various applications of the new hires model.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS i

CHAPTER I: OVERVIEW
- Introduction 1
- Outcomes of the Model 3

CHAPTER II: RATIONALE FOR MODEL ASSESSMENT PROCEDURES
- Introduction 5
- Advantages of the New Hires Model to Assess Personnel Needs 5
- The Projection of Personnel Needs 6
- Number of Additional Teachers Needed 6
- Teachers Trained Out-of-State 7
- Experienced Teachers Returning or Transferring 7
- Teachers Newly Trained In-State 7
- Projecting the Number of Teachers 8
- The Projection of Additional Needed Teacher Trainees 9
- Rationale for Variables Included in the Model 9
- Strengths of the New Hires Model 10
- Addressing the Problem 10
- Conclusion 11

CHAPTER III:
- Sources of Newly Hired Teachers 12
- Number of Teacher Certifications Earned Yearly by Teachers in Training Institutions 15
- The Analysis Followed in Assessing Personnel Needs 17
  - Proportion of Newly Trained Teachers Employed 17
  - Projection Based on Emergency Licenses 20
  - Longitudinal Data to Identify Trends 21
  - Projecting Future Teacher Needs 22
- Supplemental Information 24
  - Active Reserve Pool 24
  - Follow-up Studies 25
    - Follow-up Survey of Newly Trained Teachers 25
  - Teacher Attrition Studies 29
    - State Attrition 29
    - District Attrition 31
    - Regional Attrition 31
    - Attrition by Level 32
  - Geographical Analysis 32
    - Comparison of urban/rural areas 32
    - Geographical Regions 32

CHAPTER IV: INSERVICE
- Assessment of Inservice Needs 36

CHAPTER V: RESOURCES
Overview 37
Description of Resource Personnel 37

CHAPTER VI: SPECIAL EDUCATION CSPD EVALUATION MODEL
Evaluation Model 44

REFERENCES 45

APPENDIX A: Outline for CSPD Model 46
APPENDIX B: Evaluation Model for CSPD Plans 48

TABLES

1. Number of New Teachers Hired in Alabama, 1988 12
2. Number of New Teachers Hired in Wisconsin 13
3. Newly Hired Teachers on Emergency Licenses 15
4. Special Education Certificate Endorsements Recommended by Educational Institutions 16
5. Comparison of Employment Proportion for Teachers Securing Their First Teaching Position 1990 18
6. Additional Teacher Education Graduates Needed to Meet Anticipated Program Need in Michigan, 1986-87 20
7. Number of Newly Hired Teachers Over a Four Year Time Span 21
8. Projections for Elementary Education 22
9. Total Teacher Demand (FTEs) Due to Enrollment Growth and Attrition 23
10. Profile of Texas Elementary Teacher Applications 24
11. Employment Profile of Sample of Newly Certified Special Education Teachers 26
12. Positions Obtained by Subject Field, 1988-89 28
13. Retention of Special Education Instructional and Ancillary Personnel: Michigan, 1980-89 30
14. Special Education Personnel Attrition by Geographical Region: Kansas . 1988-89 31
15. Special Education Personnel Attrition for 1988-89 by Level of Instruction 32
16. Services Provided to Students With Handicaps by CESA 35

FIGURES

1. Sources of New Hires 5
2. The Projection of Personnel Needs 5
3. Proportion of Newly Trained Teachers 8
4. Projecting Future Teacher Needs 8
5. Projecting Future Needs Based on New Hires Model 9
6. Projection of Additional Needed Teacher Trainees 9
7. Elementary (K-8) Attrition 29
8. English Attrition 29
9. Math Attrition 29
10. Emotional Disturbance Attrition 29
11. Milwaukee Attrition 31
12. Green Bay Attrition 31
13. Services Provided to Children With Disabilities by Region 33
14. Comparison of Special Education Services Provided in Each CESA Geographical Area 34

CSPD TECHNICAL MANUAL

CHAPTER 1
OVERVIEW

Introduction

The Comprehensive System of Personnel Development (CSPD) Technical Manual has been prepared in response to the concern of the Office of Special Education and Rehabilitation Services for obtaining more accurate and comprehensive data on personnel needs in special education. This manual addresses this concern, as well as presents procedures for the collection of data in areas necessary to project personnel needs.

The supply/demand for teachers is closely related to factors that influence the quality of the educational system. When teacher shortages occur and unqualified teachers are hired, students' education suffers. An oversupply of teachers will discourage the competent, potential educators from entering the field when they have little probability of employment. Additionally, the unequal availability of teachers across different geographical areas can lower the quality of education for students in these locations. The problem of "goodness of fit" between some fields of education, which face an oversupply of teachers and other instructional areas that are in critical need of personnel (bilingual and special education), impacts on select groups of students. This problem of imbalance can be corrected with accurate information for prospective teachers indicating areas where actual shortages exist (Murnane & Singer, 1988). Thus, to improve the quality of the educational system, it becomes imperative that there is an accurate assessment of the personnel needs.

The new hires model for assessing/projecting personnel needs in education is a cost-efficient and accurate methodology, which utilizes the State Education Agency's (SEA's) personnel data base to identify all the newly hired teachers in a given year (Lauritzen, 1989). This approach categorizes newly hired teachers as follows: teachers trained out-of-state, experienced teachers returning or transferring, teachers newly trained in state, and teachers on newly issued emergency licenses. It provides a profile of the sources of all newly hired teachers. Additional data is obtained on the number of teachers being prepared in the state and the child count from the SEA. This profile of the sources of newly hired teachers provides the information necessary to understand possible approaches to address those areas in which there is a shortage of teachers. The proportion of teachers trained in state who secure positions as new hires provides an index of employability in each of the certification categories. The many variables impacting on the number of newly hired teachers (e.g., attrition, retirement factors, pupil/teacher ratios, economic impact on educational funding and certification standards) all are reflected in this market generated outcome. Thus, separate measures of these variables are not necessary to complete the analysis unless this information is desired to understand their impact on the need for new teachers.

The new hires model can also be applied to the projection of future teacher needs. The impact of enrollment fluctuations, retirement rate changes, attrition variance, etc. can be related to the yearly changes in the number of newly hired teachers. This longitudinal data can be applied to the projection of future needs based on regression procedures or by simple proportional increases as related to the fluctuations in the selected variables. Information on the variables effecting teacher supply are necessary only if anticipated changes are projected.

Other methods have been used to assess educational personnel supply/demand. Currently utilized research procedures include: survey analyses, models using systems of equations, follow-up studies of recent program graduates, longitudinal studies of individuals trained as teachers, and analyses of job applications. Studies that rely on a wide variety of data sources including currently employed teachers, applications of teachers seeking employment, state education agency (SEA) administrative/personnel records, placement office studies, and national longitudinal data will be described. It is important to recognize that each of these

approaches can provide information which will contribute to the knowledge base concerning the supply/demand for teachers. Those researchers that combine the strength of several procedures in their overall analysis will, in all probability, have a more accurate approach to assessing personnel needs.

Such is the case with the new hires model described here. For example, analysis of job applications (See Table 8) can be used in conjunction with the basic new hires model in order to better understand the active pool of job-seekers in teaching. Lauritzen (1990) has identified this analysis as the "most accurate method to assess the available pool." Thus, by combining the advantages of this procedure to the new hires model, accuracy is enhanced. Ultimately, the application of such a model might assist the educational decision-making process.

The model presented in this manual can be the vehicle for the collection of data in the areas of teacher supply/demand, identification of inservice needs and delivery of training, exemplary teaching procedures, and other promising practices that would lead to quality education. The information gained from this CSPD reporting format model will assist the SEA in programming decisions, provide the SEA and Institutions of Higher Education (IHEs) data on teacher supply/demand, and provide the Local Education Agencies (LEAs) with procedures for inservice needs assessment.

Six basic objectives have been identified in the development of the model presented in this manual. A brief description of each objective follows:

1. The first objective was to identify the most relevant procedures for projecting long and short range personnel needs in education. Thus, the model must be broad enough to encompass all areas that have an impact on the supply of teachers and their continued professional improvement.

2. The second objective was to develop procedures that will provide consistent data across the states, yet which are flexible enough to adapt to the various program delivery systems among the states. Thus, the model provides a profile of local, state, and, in the near future, regional demands for teachers using identical methods of data collection. Through the cooperation of the participating states, common definitions of terms are being developed and incorporated in this model. This is a critical objective since it will afford the federal decision makers data on national needs which will provide justification for legislative requests in support of programs for all students.

3. The third objective was to utilize procedures that will produce the needed information in the most cost-efficient way possible. This training manual relies heavily on computer-generated data which minimizes the personnel hours needed to compile survey studies or to conduct other time-consuming activities. This manual presents procedures that cover those areas of information that must be a part of a state's data base. Computer programs for gleaning the answers to the questions about supply/demand through an efficient and accurate system have been demonstrated. Once a state has designed the necessary data base, the information can be updated on a yearly basis at low cost. In addition, a wide variety of analysis is possible, which provides supplemental information that can be used in state policy planning (teacher attrition, projected retirement, etc.). This model also provides for the rotation of selected components on a two or three year basis in areas where data has proved to be relatively stable over time.

4. The fourth objective was to keep the procedures as simple as possible while still obtaining the necessary information. This manual will meet this objective by relating several data points without complex statistical or analytical procedures. States will be given some choice of procedures that can be followed, in order to meet the data objectives.

5. The fifth objective was to identify basic areas of data collection that are necessary for a system that accurately assesses the personnel needs in education. Chapter II presents a rationale for these areas of data collection and their use to project personnel needs. Chapter III details application of the personnel assessment procedures. A brief description of the four areas follows:

   Basic Areas of Data collection for Teacher Supply/Demand Information

   1) the number of teachers trained out-of-state

   2) the number of experienced teachers returning or transferring

   3) the number of newly trained/certified teachers prepared in the state

   4) the number of teachers newly employed in education who are not fully certified in their teaching category (first year emergency licenses)

   5) The number of new teacher certifications in each field from the teacher preparation programs in the state

6. The sixth objective of this manual was to present a format for reporting CSPD data in the State Program Plan. P.L. 94-142 (The Education for All Handicapped Children Act) regulations were reviewed to identify the mandated area of data reporting. New areas of information which are necessary for a comprehensive data system are recommended to supplement previously mandated information. The final recommended CSPD reporting format should provide the data required for accurate assessment of personnel needs in special education. The final step in developing the reporting format was to assign points on the basis of the contribution of the information to the total CSPD plan base. The assigned point system provided an objective procedure to evaluate the quality of the of the CSPD section of the State Program Plan.

Outcomes of the Model

The implementation of this model will provide a broad base of information and will answer many questions about the personnel needs in the field of education. The procedures that provide the majority of the data required to project preservice needs can, in most cases, be generated from the SEA's computer data base. Thus, those states with a system that incorporates selected information about teachers and their certification can produce the data with appropriate computer programming. A description of the information required in the data base is included in Chapter 3.

Once the basic procedures are in place, it becomes easy to expand the areas of data collection to investigate many variables that impact on personnel needs (e.g., attrition, geographical variables, retirement, etc.). The information is very comprehensive and provides an accurate profile of preservice training needs. Following is a partial list of important outcomes:

1. Identifies educational areas which need additional teachers, as well as those which display a surplus

2. Identifies clearly the ages at which teacher attrition is most likely to occur and the rate of attrition in different teaching fields

3. Identifies employment opportunities of newly trained teachers for the state

4. Provides annual information on the pool of newly prepared teachers available for positions

5. Investigates the efficacy of employing teachers who are not fully certified, in terms of how long they remain in education or whether they complete their certification requirements

6. Examines the differences between rural and urban educational services

7. Provides information on the need for and availability of teachers with minority backgrounds

8. Provides a profile of the sources of all newly hired teachers in the state

9. Provides information on the age, gender, and educational level of all newly hired teachers

10. Provides information for assessing the reserve pool of teachers which is available to fill existing vacancies

Thus, the model satisfies these goals:

1. It enhances collaborative personnel planning within the state among college and university personnel, regional and local education personnel, and the SEA so that a system can be developed for continuous input.

2. It guides the development of a coordinated data base for state administrative decisions regarding educational programming within various government agencies responsible for the education of all students.

3. It provides an objective, comprehensive view of education programs within the state to produce accountability for data and statistics.

4. It provides a basis for advising and assigning students to majors relevant to the supply/demand of teachers.

5. It supplies accurate data about new trends in certification to professionals working in the field of education so that teachers can provide the best possible programs for their students, as well as develop a professional identity and sense of security for themselves.

CHAPTER II
RATIONALE FOR MODEL ASSESSMENT PROCEDURES

Introduction

In this chapter, the methodology for assessing teacher personnel needs in education using the new hires model is presented. This approach is based on a careful analysis of new hires (all the teachers newly hired by a state for a given year). This approach is data-efficient in that only four categories of information are needed from the SEA data file in addition to a count of the number of new teacher certifications completed.

The four general areas that represent the possible sources for newly hired teachers are shown in Figure 1.

FIGURE 1

SOURCES OF NEW HIRES

1	2	3	4
Teachers Trained in	Experienced Teachers	Teachers Newly Trained In-State	Teachers On Newly Issued Emergency Licenses*
A) Neighboring States	A) Returning		
B) Other States	B) Transfering		

*There are many terms used to identify teachers who are certified in a field different from the one in which they are teaching (the term "emergency licenses" will be used here).

The proportion of teachers in each of these categories will vary considerably from one state to another. As an example, only about 10% of some states' newly hired teachers receive their preservice training in out-of-state programs while in other states this percentage may exceed 50%.

The answer to the teacher shortage in any one state is to increase the availability of new hires from one or more of the first three sources listed in Figure 1. The last source (emergency licenses) is also a potential pool of new hires, but cannot be considered a solution to a teacher shortage since these teachers are not fully prepared for their field.

Advantages of the New Hires Model to Assess Personnel Needs

The procedures used to assess personnel needs discussed in this manual are designed to be accurate and data efficient. This accuracy occurs since the total pool of newly hired teachers is used in the analysis rather than a sample subset. This market-generated pool of newly hired teachers reflects the impact of retirement, pupil/teacher ratios, certification hurdles, pupil population fluctuations, and attrition. Separate calculations on each of these variables is not necessary since they all impact on the number of newly hired teachers, thus avoiding the compounding of errors of measurement that occur with systems that tabulate independent variables. The data file developed for this analysis is cost effective since only about 8% of the total SEA personnel/certification data base is utilized.

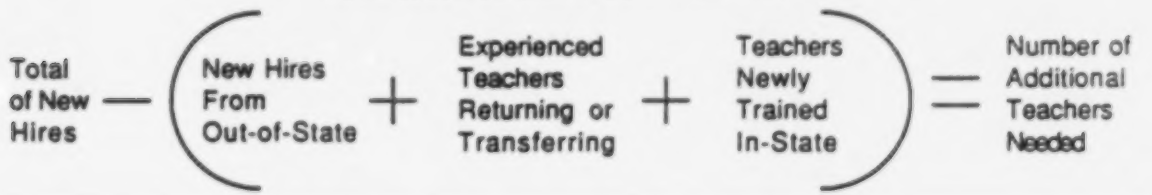
The procedures are flexible to the various program delivery systems which are unique to the states. Factors such as geographical isolation, pupil/teacher ratios, and differences in pupil classifications are accommodated. By using each state's identified teacher needs, the state's right to determine its own educational policies, rules, and procedures is avoided.

The Projection of Personnel Needs

The states that follow the model in Figure 2 can increase their supply of new teachers by addressing the first three sources of new hires. The manipulation of the variables that affect these sources provides a state the opportunity to reduce or eliminate a potential teacher shortage.

FIGURE 2

THE PROJECTION OF PERSONNEL NEEDS


Total of New Hires
New Hires From Out-of-State
Experienced Teachers Returning or Transferring
Teachers Newly Trained In-State
Number of Additional Teachers Needed

The total number of newly hired teachers calculated on a yearly basis appears to be the best measure of personnel needs. When program growth or decline occurs on a consistent basis, projection for future years can be corrected by using the proportion of teachers needed to offset the change (e.g., the number of teachers needed based on the current pupil/teacher ratios). The pupil enrollments has been relatively stable in most states for the past several years. Based on this stability, the number of newly hired teachers from the previous years can be used to project the needed personnel in these states.

Number of Additional Teachers Needed

Unfilled personnel needs occur when all the sources of qualified newly hired teachers cannot collectively provide enough teachers to fill existing vacancies. Many states list unfilled vacancies and use this as one indication of a need for additional teachers. The current model does not consider this category as an accurate measure since the districts do have other options available. These options include: hiring out-of-field teachers, increasing recruitment efforts, hiring long-term substitutes, making the position more attractive (e.g., raise salary), or reassigning pupils, thus increasing the pupil/teacher ratio. These solutions may not be educationally sound, yet they do reflect market-generated alternatives. Since the extent of a district's recruitment or the political reasons a position may not be filled (e.g., reduced budget, keeping a position open for a returning teacher) are unknown, this category of unfilled vacancies may not accurately represent need.

Most states have a policy which permits the hiring of teachers not certified in the needed teaching field, after making a reasonable search for a qualified teacher. These out-of-field trained teachers are usually given an emergency license which permits them to teach for a limited period (typically one year) with continuation of the license contingent upon obtaining a prescribed amount of yearly training in that field. Some states are even licensing individuals who have not received any preparation in the field of education. Federal Law P.L. 94-142 mandates that each child with a qualifying handicapping condition be placed in an appropriate educational program within 30 days of the placement decision. Thus, when districts cannot find qualified teachers for eligible handicapped children, who cannot be appropriately placed in general education, they are still mandated to fill these positions.

Thus, in Figure 2, the number of additional teachers needed would approximate the number of teachers newly employed on emergency licenses for that year. This suggests that one measure of the additional qualified teachers needed by a given state is the number of new emergency licenses issued for that year.

Teachers Trained Out-of-State

The teachers who are trained in other states can be a considerable source of qualified newly hired teachers. This proportion varies considerably. Many different factors seem to account for this variability. These include reciprocity in certification, minimal certification standards, attractive climate, progressive educational system, salary, and family unity.

A partial explanation of this mobility can be based on the research available. Experienced teachers (usually older and married) generally move because the primary wage earner relocates to another state. The most mobile are inexperienced, recent graduates who are not likely tied to family commitments. Salary and climate can be factors in attracting teachers. States with large urban programs or isolated geographical locations may have difficulty keeping teachers in these areas.

There are several reasons that may make recruitment of out-of-state teachers a less than fully acceptable approach to addressing a teacher shortage problem. The teachers with the most mobility to locate in new states are the current year's newly trained teachers. Yet this age grouping (typically under 30) has the highest attrition rate of all teachers. Also, with most of the states needing qualified teachers in select fields, the recruitment from other states only increases the problem in another geographical area. Lastly, the different service delivery systems and certification standards may make it difficult to attract out-of-state prepared teachers. Some states are currently very dependent on teachers trained in other states to fill existing vacancies. Teachers prepared in other states will likely continue to remain a necessary and viable source of qualified new special education personnel for these states.

Experienced Teachers Returning or Transferring

Returning or transferring experienced teachers can be a large source of newly hired teachers for some states. This category of new teachers needs to be defined to include qualified teachers who return after an absence from teaching and those who move from one teaching field to another (e.g., from general education to special education). Teachers who move from one district to another would be considered transfers.

The research in this area suggests the main reason these teachers return to the field is economic in nature (Sieracke, 1990). Other factors were the enrollment of their young children into school and a desire to return to a challenging profession. Transferring teachers usually relocate because the primary wage earner has made a professional move. Data suggests that this older pool of teachers is very restricted geographically.

The reserve pool of teachers contributing to the returning teachers source is composed of an active reserve pool (teachers actively seeking employment in education) and an inactive reserve pool (qualified teachers who are not searching for educational positions). This inactive pool has less probability of returning to the field for numerous reasons (e.g., employment in other professions, family responsibilities, choice not to teach, and/or discontinuation of job search).

Teachers Newly Trained In-State

Newly prepared teachers provide a necessary source. The importance of this source is that it will contribute, in time, to the reserve pool, as well as provide immediate new hires. This is probably the best source of new teachers which can be effectively increased, resulting in the reduction of the need to hire unqualified teachers.

The difficulty of using the number of newly prepared teachers alone to project the supply of personnel available to fill open positions is that a large proportion of these new trainees do not actually secure employment in the state that prepared them. Some leave the state to teach, while others rear children or work outside the field of education. When projecting the availability of newly prepared personnel, this initial attrition must be corrected by using only the proportion of newly prepared teachers who secure teaching positions in their state. The proportion of newly trained teachers available is obtained by dividing the total

number of certifications earned by teachers who secure employment in the state programs by the total number of teachers trained in that certification category (see Figure 3).

The probability of employment increases for those who earn multiple certifications, since they can teach in more than one field. Thus, the employment proportion for a given field is increased by those who are also teaching in some alternative area. The procedure described in Figure 3 in effect converts the certifications earned to a head count projection of teachers who are employed. The accuracy of the projection is based on the stability of the pupil population, consistent levels of teacher preparation, and other related variables. Many of the newly hired teachers who were prepared several years prior to securing their first teaching employment are included in these projections, making the data a lifetime employment projection in a state's public schools.

FIGURE 3

PROPORTION OF NEWLY TRAINED TEACHERS

SINGLE CERTIFICATION

$$\frac{\text{Number of Inexperienced New Hires Trained In-State by Designated Certification}}{\text{Number of Teachers Trained in the State Previous Year by Designated Certification Category}} = \text{Proportion of Newly Trained Teachers Who Secure Positions in Designated Category In-State}$$

MULTIPLE CERTIFICATION

$$\frac{\text{Number of Inexperienced Newly Hired in Designated Categories and Alternate Certifications Trained In-State by Certification Categories}}{\text{Number of Teachers Trained in the State Previous Year by Designated Certification Category}} = \text{Proportion of Newly Trained Teachers Who Secure Teaching Positions In-State}$$

Projecting the Number of Teachers

The number of teachers needed in the future is directly related to projected enrollments, attrition of teachers, and any program changes that might impact on the education of children (pupil/teacher ratios, expanded kindergarten, etc.). Knowledge about the anticipated variance in the above factors is necessary for an accurate projection of teacher need. Figure 4 shows the procedures that can be followed using projected enrollment changes and attrition in determining future teacher needs.

FIGURE 4

PROJECTING FUTURE TEACHER NEEDS

$$\left(\text{Total of Currently Employed Teachers} \times \text{Attrition Projection}\right) + \left(\text{Projected Enrollment Change} \times \text{Current Pupil/Teacher Ratio}\right) = \text{Needed Teachers}$$

States that do not have available attrition data can still project teacher need by using the modified procedure shown in Figure 5. Knowledge about any factors which might change in the future can easily be included by modifying these procedures.

FIGURE 5

PROJECTING FUTURE TEACHER NEEDS BASED ON NEW HIRES MODEL

New Hires Current Year + (Projected Enrollment Change X Current Pupil/ Teacher Ratio) = Needed Teachers

The Projection of Additional Needed Teacher Trainees

States that elect to address the teacher shortage by supporting procedures that will increase the number of teachers being prepared can follow a procedure that will give a rough projection of additional teachers needed. This can be done by relating the proportion of newly prepared teachers who secure teaching positions to the needed additional teachers as determined by the number of newly issued emergency licenses in that certification category. By simply dividing the number of new emergency licenses issued by the proportion of newly prepared teachers who secure teaching positions in the state, the number of additional teachers trained above current levels will be obtained. The procedure is shown in Figure 6. This approach will not project the number of additional teachers needed unless there is a shortage of teachers indicated by issuance of new emergency licenses.

FIGURE 6

PROJECTION OF ADDITIONAL NEEDED TEACHER TRAINEES

$$\frac{\text{Number of New Hires on Emergency License}}{\text{Proportion of Newly Trained Teachers Who Secure Teaching Positions In the State}} = \text{Additional Needed Teacher Education Graduates}$$

There are several serious limitations in projecting teacher needs by only relating the number of teachers being prepared to the number of newly issued emergency licenses. The isolation of some rural areas may make it very difficult to attract teachers when there are limited professional employment opportunities for their spouses. The fields of special education with low incidence handicapping conditions (visually impaired, hearing impaired, severely handicapped) are very restricted by this geographical barrier. Also, not all emergency licenses may reflect full time teacher needs, but rather a temporary or isolated teacher problem.

Rationale for Variables Included in the Model

The most frequently identified concern contributing to the shortage of teachers is the high attrition rate. Recent research in this area shows this to be a declining factor in the shortage of teachers. Generally, states that have accurate longitudinal data in this area show a steady decrease in the attrition rate. The high attrition rate in special education can, in part, be attributed to the younger age of the teachers in this field. This fact will contribute to a continuing future decline of teacher attrition in special education.

Research done by Metzke (1988) indicates many factors relevant to teacher attrition (administrative support, raising a family, quality of preparation, curricular independence, etc.) This, in part, reflects the support society provides to public education. Considering this data, the total educational environment would need to be altered to further reduce attrition. The manipulation of this environment would require a change in societal values.

Another approach that is frequently considered in reducing the shortage of teachers is to increase the supply of experienced teachers returning to the field. It is well recognized that education is a female-dominated profession and many teachers tend to leave the field while caring for young children, and return as their family matures (Sieracke, 1990). This pool of experienced teachers makes up a considerable proportion of newly hired teachers in many states. There are several characteristics of this source of newly hired teachers. First, they are restricted geographically since the returning teacher is generally not the primary family wage earner. Second, certification changes can inhibit their re-employment. Third, increases in this pool of experienced teachers is dependent on the continued preparation of new teachers. These factors suggest that in fields with a shortage of personnel the most viable solution is the preparation of additional personnel.

Several standards, including teacher certification and raising pupil/teacher ratios, relate to the shortage of teachers. To reduce the effect of these variables would only reduce the quality of education. The reduction of these standards was, therefore, not recommended.

Strengths of the New Hires Model

The strength of the new hires analysis for projecting personnel needs is that it provides the opportunity to approach the solution of the teacher shortage with procedures that fit a given state's potential for attracting teachers. This is very critical to states that secure the majority of their teachers from other states. This procedure also provides a comprehensive picture of the sources of potential new hires. An additional strength of this approach is that it requires limited data to accurately project its teacher needs.

The value of the procedures presented in this chapter is that they provide a degree of objectivity in measuring personnel needs, a format to increase the understanding of the sources of personnel, and a comparison between different program areas in the field of education.

Addressing The Problem

The reasons for some shortages of teachers in education need to be considered in order to find a realistic solution to the problem. The large yearly decline in the number of special educators being prepared over the past several years, the equally large decline in the number of minority teachers being trained, and the population redistributions in some states all contribute to this shortage. Also the high attrition rate in some fields is a major contributing factor. Considering all these variables, the single most realistic long-term solution to a teacher shortage is to increase the number of new teachers being prepared in fields with shortagesx and to train teachers willing to serve in geographical areas that are in need. This would make available not only newly trained teachers for the state, but, in time, expand the source of new teachers for the reserve teacher pool.

A commonly perceived approach to reduce the shortage of teachers is to reduce attrition rates. The high attrition rate of young, female teachers will, in all probability, remain high due to family commitments. This will be a more complex problem since the quality of the teaching environment will need to be improved to have a significant impact on the current attrition rates.

The recruitment of personnel from out-of-state may only increase the shortage of faculty in those states that have difficulty retaining them. An additional limitation is that the solution to the teacher shortage for some states cannot be resolved by simply increasing the number of teachers being prepared.

Special education areas with low incidence handicapping conditions (visually impaired,

hearing impaired, and severely handicapped) face unique problems in securing qualified teachers. Similar problems exist for specialty subject teachers and those fields with low pupil enrollment (physics, foreign languages, etc.). The geographical isolation of the majority of these programs limits the availability of teachers who are restricted by family commitments. Small districts can be reluctant to hire a qualified teacher who will serve only a few students. The problem cannot simply be resolved by preparing more teachers for these fields unless these new trainees will locate in the specific district with a need. The answers to resolving the teacher shortage in low incidence areas and specialty subject fields are far more complex than in other educational areas.

Conclusion

The information presented in this manual delineates procedures to determine personnel needs by certification area and identifies the potential sources of teachers that could resolve teacher shortages in specified educational areas. Continued research is needed on how to attract teachers back to the profession, and ways to increase the number of personnel trained in shortage areas. Considering the decreasing numbers of newly trained teachers in select fields and the high attrition rate in special education and urban areas, it seems logical that efforts must be made to improve the teaching environment while also increasing the recruitment of new trainees. At present, the new hires model appears to be the most viable one to measure the critical shortage of teachers in select fields and geographical areas.

CHAPTER III
APPLICATION OF THE PERSONNEL ASSESSMENT PROCEDURES

This chapter contains a description of data collection procedures and examples of how results can be presented. The procedures described in this assessment process are, to a large extent, dependent on using data that can be analyzed by computer. The examples used in this manual are taken from data provided by the cooperating states in the federal CSPD project. The different formats and delivery systems of the state causes partial loss of the information's continuity. This loss is compensated for by a larger proportion of the examples from the state of Wisconsin where all phases of the model were implemented.

Sources of Newly Hired Teachers

This data can easily be obtained by establishing a computer-generated file of all the newly hired teachers for the current school year. The use of a state's certification and employment records can provide the necessary data points to compile this record. The special education example in Table 1 from Alabama provides the basic data needed to assess teacher needs. This analysis can be expanded to result in a comprehensive profile of newly hired teachers. This expansion, dependent on the information available in the computer file, can provide data on minority teachers, ages of newly hired teachers, educational level, and specific geographical areas supplying out-of-state teachers.

TABLE 1

1989 TALLY OF NEW SPECIAL EDUCATION TEACHERS HIRED IN ALABAMA

TEACHING CATEGORY	ALABAMA TRAINED HIRES WITHOUT EXPERIENCE	ALABAMA TRAINED HIRES WITH EXPERIENCE	TEACHERS TRAINED OUT-OF-STATE	NEW HIRES NOT MEETING CERTIFICATION STANDARDS
Mild LD	0	2	0	8
ED	21	17	10	43
LD	11	29	26	96
ORTH/OHI	0	3	0	2
Adaptive PE	0	0	0	7
Early Ed.	5	4	2	7
HI	2	5	4	0
Deaf-Blind	0	0	0	0
V Handicapped	0	0	4	2
MR-ED	27	32	14	35
MR-TR	8	9	1	5
MR-PR	3	2	2	5
SI	4	7	6	2
MH	6	3	4	5
Homebound	0	0	0	1
TOTAL	87	113	73	218

Source: CSPD Special Project Report (Lauritzen, 1989)

The second example (Table 2) is from the state of Wisconsin, showing a different format for reporting the data.

TABLE 2

NUMBER OF NEW TEACHERS HIRED IN WISCONSIN

	Wisconsin Newly Hired Teachers Without Experience	Wisconsin Experienced Teachers Tranferring	Wisconsin Experienced Teachers Returning	Out-of-State Teachers Without Experience	Out-of-State Teachers With Experience	Total of Newly Hired Teachers
ELEMENTARY EDUCATION						
100-188 EL (K-8)	668 (48%)	158 (11%)	303 (22%)	101 (7%)	155 (11%)	1385
SECONDARY EDUCATION						
200 Agriculture	15 (52%)	8 (28%)	3 (10%)	0 (0%)	3 (10%)	29
210-215 Home Economics	13 (31%)	4 (10%)	13 (31%)	4 (10%)	8 (19%)	42
220-235, 293-299 Technology Education	17 (40%)	16 (37%)	7 (16%)	0 (0%)	3 (7%)	43
250-285 Business/ Distributive Education	26 (44%)	10 (17%)	8 (14%)	6 (10%)	9 (15%)	59
300,310,320, 325 Eng/Journ/Speech/Drama	62 (40%)	18 (12%)	29 (19%)	14 (9%)	31 (20%)	154
315-317 Reading	20 (21%)	18 (19%)	33 (34%)	3 (3%)	22 (23%)	96
350-390 Foreign Language	45 (33%)	18 (13%)	31 (23%)	20 (15%)	23 (17%)	137
395 English as a Second Language	11 (37%)	1 (3%)	7 (23%)	1 (3%)	10 (33%)	30
400-430 Math	56 (52%)	12 (11%)	22 (21%)	8 (7%)	9 (8%)	107
450-455 Drivers Ed/ Safety Ed	0 (0%)	0 (0%)	1 (50%)	0 (0%)	1 (50%)	2
500-515 Music	56 (33%)	22 (13%)	43 (25%)	21 (12%)	27 (16%)	169
530-536 Phy Ed	65 (50%)	6 (5%)	41 (32%)	7 (5%)	10 (8%)	129
550 Art	59 (50%)	17 (14%)	31 (26%)	3 (3%)	8 (7%)	118
600-637 Science	44 (44%)	11 (11%)	24 (24%)	7 (7%)	13 (13%)	99
700-761 Social Studies	50 (51%)	12 (12%)	25 (26%)	5 (5%)	6 (6%)	98
SECONDARY TOTAL	539 (41%)	173 (13%)	318 (24%)	99 (8%)	183 (14%)	1312
SPECIAL EDUCATION						
805 Hearing Disabilities	1 (25%)	0 (0%)	1 (25%)	0 (0%)	2 (50%)	4
806, 807, 810 Mental Retardation	41 (45%)	14 (15%)	12 (13%)	9 (10%)	15 (17%)	91
808 Early Childhood:EEN	24 (41%)	8 (14%)	15 (26%)	3 (5%)	8 (14%)	58
811 Learning Disabilities	81 (43%)	30 (16%)	44 (23%)	6 (3%)	28 (15%)	189
820 Speech & Language	21 (27%)	14 (18%)	29 (37%)	2 (3%)	13 (16%)	79
825 Visual Disabilities *	0 (0%)	0 (0%)	0 (0%)	0 (0%)	3 (100%)	3
830 Emotional Disturbance	85 (57%)	10 (7%)	22 (15%)	4 (3%)	28 (19%)	149
SPECIAL ED TOTAL	253 (44%)	76 (13%)	123 (21%)	24 (4%)	97 (17%)	573
Other categories of licenses not above **	141 (25%)	50 (9%)	237 (43%)	27 (5%)	100 (18%)	555
GRAND TOTAL	1601 (42%)	457 (12%)	981 (26%)	251 (7%)	535 (14%)	3825

Source: Wisconsin Teacher Supply and Demand Project, 1990

* Percentages for Visual Disability are not relevant due to the fact that Wisconsin has not trained teachers in this area for many years.

**"Other categories of licenses not above" includes individuals with certification that do not involve direct class room responsibilities: Coaching Athletics (540), Occupational Therapy (812), Health Occupations (911), School Counselor (966), and Supervisor of Couseling and Guidance (968)

A. Newly hired Teachers Prepared In-State

The important source for evaluating the impact of a state's teacher preparation programs on the supply of teachers is the number of new teachers trained in-state without previous experience. It should be noted that this in-state newly trained teacher category includes all hires who have no previous experience even if they completed their preparation several years prior to their first employment.

The most efficient method of obtaining this information is to identify the teachers prepared in-state from the computer-generated file of newly hired teachers. The contribution of teachers to the state by each teacher training institution can be identified in most states.

B. Teachers Trained Out-of-State

This data can usually be obtained on the certification file of newly employed teachers. SEAs with a more complete data file can identify the specific state and/or training institutions which provide the largest number of their out-of-state, newly hired teachers. The data from the analysis of states that have compiled this information indicates that the majority of newly hired teachers trained out-of-state come from adjacent states.

C. Experienced Teachers Returning or Transferring

This source of newly hired teachers in many states contributes up to 50% of the newly employed teachers. Personnel includes teachers coming from the reserve pool of experienced teachers and those transferring within the state.

Teacher mobility within a state does not impact on the overall supply of teachers, but it is a variable that needs to be considered if some geographical areas gain teachers at the expense of others. The SEA teacher employment record from the previous year can be compared to the data file of newly hired teachers to obtain this information.

D. Number of Teachers Not Fully Certified in the Appropriate Field of Education Who Are Employed on an Emergency License.

The number of teachers employed in each state who are not fully certified is one measure of a teacher shortage. Since there are so many different terms used to identify teachers who are not fully certified, this manual refers to this type of teaching approval as emergency license. The administrative unit in the SEA responsible for certification should be able to provide this information.

The number of emergency licenses issued over a period of years should be included so that trends can be identified. The data will provide information about the specific certification areas which have the greatest need for teachers.

It is also important to include a description of the state policy and/or guidelines on the issuance of emergency licenses. States should, for their own information, identify the number of teachers on emergency licenses who earn full certification each year. This information provides insight into the efficacy of issuing emergency licenses to meet the demand for teachers in fields of critical shortage. See Table 3 for an example of this data.

STEPS IN DATA COLLECTION

1. Search the SEA computer data base to provide information on the total number of emergency licenses issued by each certification category for the previous school year. Also, report the information from previous years to identify trends in teacher needs. The data, if possible, should provide a comparison of emergency licenses issued in all areas of education.
2. Search the data base to provide the number of new (issued for the first time) emergency licenses issued by certification category for the previous year. This data is

a vital part of the procedure to project teacher shortages related to training needs.

3. Provide a statement of the state policy and/or guidelines on the issuance of emergency licenses.
4. Provide a complete explanation regarding specific reasons the fields with an adequate supply of teachers utilize emergency licenses (e.g., magnet schools with emphasis areas such as fine arts needing special expertise). Identify fields not having an adequate supply of teachers.

TABLE 3
NEWLY HIRED TEACHERS ON EMERGENCY LICENSES

	Wisconsin		Out-of-State		
	Hires With Experience	Hires Without Experience	Hires With Experience	Hires Without Experience	Total New Hires
Early Childhood	0	0	0	0	0
Elementary Ed. (K-8)	21	33	8	5	67
Agriculture	2	1	0	0	3
Home Economics	1	1	0	0	2
Tech. Ed./Industrial Arts	1	0	0	0	1
Business Ed.	1	0	0	0	1
English/Jour/Speech	0	2	0	2	4
Reading	3	11	4	1	19
Foreign Language	2	7	4	0	13
English as 2nd Language	5	6	7	0	18
Math	0	1	1	0	2
Driver/Safety Ed.	0	0	0	0	0
Music	1	0	2	0	3
Physical Ed.	1	2	0	0	3
Art	0	0	0	0	0
Science	2	6	0	2	10
Social Studies	1	6	0	0	7
Hearing Disability	0	0	0	0	0
Mental Retardation	2	3	5	4	14
Early Childhood: EEN	6	2	1	0	9
Learning Disability	26	16	3	3	48
Speech and Language	1	3	0	2	6
Visual Disability	0	0	0	0	0
Emotional Disturbance	37	26	9	2	74
Librarian	3	1	0	0	4
Other	7	41	1	3	52
TOTAL	123	168	45	24	360

* Includes certification codes 806 and 807

** The data does not include who transferred within a district and had to obtain an emergency license for the new position.

Source: Wisconsin Teacher Supply/Demand Project (Lauritzen, 1990)

Number of Teacher Certifications Earned Yearly by Teachers in Training Institutions

Information on the supply of newly prepared teachers can be used in conjunction with other information to project the personnel available to provide instruction. It is important to collect counts in this area yearly so that both short-term and longitudinal data are available.

The information about the number of new certifications granted by the institutions of higher education is best obtained directly from each teacher training program. Both public and private institutions are sent a letter requesting the number of all new certifications earned by

teachers during the period from July 1 to June 30 of each year. These dates provide consistency across states. Those institutions which do not respond by the deadline indicated in the cover letter are telephoned to remind them of the importance of this information.

Some states have contracted with one of the IHEs in their state for this information. This outside agency may be in a better position to cooperatively collect this information. Many states require the reporting of this data on a regular basis.

The information is reported by institution and certification category. States can use their own nomenclature in reporting the information. Teachers completing more than one certification in education are counted for each certification category completed during the period from July 1 to June 30. States may want to show both undergraduate and graduate level training for their own information. Table 4 gives an example of how the number of teachers completing eligibility for certification in Michigan can be reported.

TABLE 4
SPECIAL EDUCATION CERTIFICATE ENDORSEMENTS
RECOMMENDED BY EDUCATIONAL INSTITUTIONS
1988-89

Educational Institutions	110-130 SA	140 SE	150 SM	160 SL	170 SK	180 SC	290 SB	280 SH	193 SV	TOTALS
Central MI Univ.	31	31	0	0	1	1	13	1	0	78
Eastern MI Univ.	53	61	12	16	2	12	24	12	0	192
Gr. Valley St. Col.	48	44	25	15	0	4	0	0	0	136
Hope College	0	6	17	0	0	0	0	0	0	23
Madonna College	0	0	4	0	0	0	0	0	0	4
Marygrove College	3	9	5	0	0	1	1	0	0	19
Michigan St. Univ.	34	24	6	8	6	1	19	1	0	99
Nazareth College	0	0	9	0	0	0	0	0	0	9
Northern MI Univ.	0	0	0	0	0	0	0	0	0	0
Oakland University	4	5	13	1	1	0	1	0	4	29
Univ. of Detroit	0	5	4	0	0	0	0	0	0	9
Wayne State Univ.	39	7	17	0	4	31	3	31	0	132
Western MI Univ.	42	36	6	2	2	5	6	5	6	110
Others (Michigan)	12	0	4	0	0	0	0	0	0	16
MICHIGAN TOTALS	266	228	122	42	16	55	67	50	10	856
Other States	88	25	41	15	2	0	26	0	0	197
ALL STATES	354	253	163	57	18	55	93	50	10	1,053

Interpretation: Recommendations from Michigan institutions for initial certificate endorsements in 1988-89 total 856. Recommendations from out-of-state teacher training institutions total 197; of the grand total number, 354 or 33.6% were for certificate endorsements for teachers of the mentally impaired (SA).

Source: State of Michigan Department of Education (Baxter & Gomez, 1990)

The Analysis Followed in Assessing Personnel Needs

There is not one simple mathematical model which can relate existing sources of data to accurately project personnel needs in a field as unpredictable as education. The value of the following analysis is its contribution to the knowledge about the employability of teachers in a given state. When the data from these procedures are synthesized, a relatively accurate projection of the personnel needs in education can be made.

A. Proportion of Newly Trained Teachers Employed

The rationale for this procedure is described on page 9 in Chapter 2. The procedure to determine the proportion of teachers who secure their initial employment in state public schools is to divide the number of newly hired teachers trained in the state by the total number prepared in the state the previous year (see Figure 3, page 9). An example of this analysis is shown in Table 5.

A prospective teacher can obtain an estimate of his/her chance of employment in the public schools by examining the information presented in Table 5. This projection is obtained for teachers in the designated certification by dividing the number of newly hired, inexperienced teachers by the number of new certifications earned the previous year. Since many teachers often earn multiple certification, this increases their probability of employment. Thus, the employment proportion for a given field is increased by those who are teaching in some alternative area. It is not within the scope of this report to provide the employment prospects for each different combination of multiple certifications a person could earn. The data in Table 5, column 4 indicates the average in employability of all teachers in that field, including those with multiple certification. Multiple certification in some areas clearly increases a teacher's employability.

The accuracy of these projections is based on the stability of the pupil population and consistent levels of teacher preparation. Yearly fluctuations in either the number of certifications earned or the number of newly hired teachers will impact on these projections. This table does provide a comparison between the employment opportunities in the different areas of education. It is important to note that the data in Table 5 represents newly hired teachers who received their preparation prior to June 1989. Many of the newly hired teachers who were prepared several years prior to their first employment are included in this projection. Thus, the projection in Table 5 is actually lifetime employment prospects assuming the current level of teacher preparation remains constant and the number of newly hired, inexperienced teachers is stable.

A total of 71 newly hired inexperienced teachers were identified as being hired in specific subject fields which were not clearly differentiated by elementary/ secondary level. For instance, a specialized math teacher in a 6-8 middle school was recorded in the math category and a music teacher with both elementary and secondary certification was included under the music category.

The "Comparison of Employment Proportions for Teacher Securing Their First Teaching Position 1990" is only one approach to present the teacher supply/demand picture. The actual projection of teacher needs is so complex that a simple formula alone can lead to errors of interpretation unless related variables are considered. The following are important factors that need to be considered to accurately understand Table 5:

1) Many teachers in the certification area of early childhood (general education and special education) are employed by agencies who do not fall under the jurisdiction of the public schools. This fact an signinficantly suppress the employment projections in Table 5.

TABLE 5
COMPARISON OF EMPLOYMENT PROPORTION FOR TEACHERS SECURING THEIR FIRST TEACHING POSITION 1990

TEACHING FIELD	EMPLOYED IN CERTIFICATION FIELD		TOTAL EMPLOYED INCLUDING MULTIPLE FIELDS		1988-89 CERTIFICATIONS EARNED BY
	NUMBER	PERCENT	NUMBER	PERCENT	TEACHERS
ELEMENTARY					
Elementary Ed. (100-188)	668	37%	781	44%	1790
SECONDARY					
Agriculture (200)	15*	58%	16	62%	26
Home Economics (210-215)	15*	94%	21	131%	16
Tech Ed. (220-235, 293-299)	18*	46%	20	51%	39
Business/ Distributive Ed. (250-285)	26	63%	27	66%	41
English/Journalism/Speech Drama (300, 310, 320, 325)	69*	24%	94	33%	287
Reading (315-317)	21*	12%	32	18%	182
Foreign Language (350-390)	49*	39%	79	63%	125
English as a Second Language (395)	11	33%	16	48%	33
Math (400-430)	68*	30%	102	45%	229
Driver Ed./Safety Ed. (450-455)	0	.0%	5	19%	27
Music (500-515)	69*	63%	89	81%	110
Physical Education (530-536)	71*	24%	112	38%	295
Art (550)	63*	54%	72	62%	116
Science (600-637)	55*	14%	85	22%	388
Social Studies (700-761)	56*	14%	104	26%	394
TOTAL SECONDARY	606	26%	874	38%	2308
SPECIAL EDUCATION					
Hearing Disability (805)	1	11%	1	11%	9
Mental Retardation (806, 807, 810)	41	30%	60	44%	137
Early Childhood: EEN (808)	24	35%	28	41%	68
Learning Disability (811)	81	38%	114	53%	215
Speech/Language (820)	21	17%	22	18%	124
Emotional Disturbance (830)	85	83%	108	110%**	102
TOTAL SPECIAL EDUCATION	253	38%	333	51%	655

See Appendix A for the formula for computing data on this table

* Included are 71 teachers in middle school positions

**The percentages exceeding 100% indicates that the number of of newly hired teachers without experience exceeds the number of newly trained teachers the previous year.

Source: Wisconsin Supply and Demand Project, 1990

2) Remedial reading requirements specify that the teacher must have other teaching certification. A number of teachers entering this field are experienced teachers transferring within a school district who would not show up in as new hires on this analysis. Thus, the need for teachers in this field can be more accurately projected by other analysis, such as emergency licenses and placement office data.

3) Special education has large numbers of teachers being employed on emergency licenses (i.e., emotional disturbance and learning disabilities). A number of these teachers have experience outside of special education and consequently do not show up in the category of newly hired teachers without experience. A correction has been made in Tables 2 and 5 by including these teachers with the newly hired teachers without experience so their employability prospects are not suppressed by this factor.

The information presented in Table 5 provides prospective teachers with an estimate of their chances of employment in the state's public schools. This employment projection can also be an estimate of the oversupply of teachers in fields with low employment proportions.

It is possible to compare the employment opportunities among the different teaching fields in education. Many of these individuals often work as substitute teachers, teacher aides, or outside the field of education prior to their first teaching position. The data showing how many years that elapsed prior to their first employment in public schools can be determined.

A number of factors need to be considered when interpreting the data found in Table 5. Private schools may employ a portion of the newly trained teachers. Although data regarding the number of teachers employed in private schools are usually not available, projections can be made. These projections are accomplished by estimating average pupil/teacher ratios and attrition rates in relation to the total private school population. Also, placement office data may provide some measure of the employment opportunities in private schools (see Table 12). Some fields have better employment opportunities outside of education which can result in a low proportion seeking teaching positions.

B. Projection Based on Emergency Licenses

The educational fields with a serious shortage of teachers will probably have a disproportionate number of emergency licenses. The number of emergency licenses issued is a strong measure of additional teachers that need to be trained because this figure reflects the number of teachers needed in addition to teachers hired from out-of-state, teachers returning to the field, and the impact of the newly trained, in-state teachers from previous years. Even with the contribution of these sources to the ranks of newly hired teachers, there may be a shortage of personnel as is demonstrated by the number of new emergency licenses issued. It may be difficult to increase the number of teachers available from out-of-state and the number of returning teachers since factors such as family unity and economics determine their availability to the profession.

The procedure followed is to relate the proportion of newly prepared teachers who secure teaching positions in the state (see Figure 3) to the additional teachers needed as determined by the number of newly issued emergency licenses. By dividing the number of emergency licenses issued the previous year by the proportion of newly prepared teachers who secure teaching positions in the state, the number of additional trainees needed will be projected. An example of this procedure can be found in Figure 6 on page 11. This procedure will not project the number of teachers needed unless there is a shortage of teachers indicated by the issuance of new emergency licenses.

Many factors must be considered in estimating the number of teacher trainees needed to eliminate the need for emergency licenses. The proportion of newly trained teachers must be interpreted on the premise that teachers could secure employment if they desired it. If there is an overproduction of teachers in certain categories, then the projected employment ratio cannot be used to calculate teacher need; no need exists. When using this data to determine teacher needs, the projected employment ratio is affected by many variables. The geographical isolation of children with low incidence handicapping conditions (e.g., visual impairments, severe handicaps) restricts the flexibility of a teacher in securing employment in his/her area of preparation. The restrictive nature of certification standards in some areas of education limits the availability of teachers trained out-of-state and can, to an extent, limit positions available to those trained in-state. Also, the oversupply of teachers in a category will greatly reduce the proportion who can find employment in this field.

TABLE 6
ADDITIONAL TEACHER EDUCATION GRADUATES NEEDED TO MEET ANTICIPATED PROGRAM NEED IN MICHIGAN, 1986-87

	Temporary Approvals (Emergency Licenses)		Proportion		Additional New Graduates Needed
Mental Retardation	25	/	70%	=	36
Emotional Disturbance	30	/	59%	=	51
Learning Disabilities	165	/	48%	=	344
POHI	0	/	55%	=	0

Source: Federal CSPD Special Project (Lauritzen, 1989)

1) There is a severe shortage of newly prepared teachers for children with learning disabilities.
2) There is a moderate shortage of newly prepared teachers for students with

mental retardation and emotional disturbances.

3) There is relatively little need for newly prepared teachers for students with physical and other health impairments.

C. Longitudinal Data to Identify Trends

The use of a separate computer file of newly hired teachers can easily be replicated on a yearly basis to provide valuable information on changing employment trends. Changes in birth rates will be reflected as soon as children reach elementary grades. Changes in high school graduation requirements will be reflected by increases or decreases in specific subject fields, as will legislative mandates impacting on certain training fields. Table 7 provides a summary of this information.

TABLE 7

NUMBER OF NEWLY HIRED TEACHERS OVER A FOUR YEAR TIME SPAN

	1986-87	1987-88	(change)	1988-89	(change)	1989-90	(change)
ELEMENTARY EDUCATION							
100-188 EL (K-8)	1165	1293	(+128)	1347	(+54)	1385	(+38)
SECONDARY EDUCATION							
200 Agriculture	31	26	(-5)	35	(+9)	29	(-6)
210-215 Home Economics	62	50	(-12)	30	(-20)	42	(+12)
220-235, 293-299 Technology Education	38	33	(-5)	26	(-7)	43	(+17)
250-285 Business/ Distributive Education	54	70	(+16)	51	(-19)	59	(+8)
300, 310, 320, 325 Eng/Journ/Speech	139	134	(-5)	136	(+2)	154	(+18)
315-317 Reading	76	67	(-9)	69	(+2)	96	(+27)
350-390 Foreign Language	83	84	(+1)	104	(+20)	137	(+33)
395 English as a Second Language	11	14	(+3)	18	(+4)	30	(+12)
400-430 Math	108	101	(-7)	96	(-5)	107	(+11)
450-455 Drivers Ed/ Safety Education	3	8	(+5)	9	(+1)	2	(-7)
500-515 Music	171	181	(+10)	185	(+4)	169	(-16)
530-536 Phy. Ed.	87	98	(+11)	119	(+21)	129	(+10)
550 Art	61	82	(+21)	112	(+30)	118	(+6)
600-637 Science	80	83	(+3)	71	(-12)	99	(+28)
700-761 Social Studies	91	89	(-2)	79	(-10)	98	(+19)
SECONDARY TOTAL	1095	1120	(+25)	1140	(+20)	1312	(+172)
SPECIAL EDUCATION							
805 Hearing Disability	6	6	(0)	8	(+2)	4	(-4)
806, 807, 810 Mental Retardation	139	134	(-5)	85	(-49)	91	(+6)
808 Early Childhood:EEN	47	47	(0)	46	(-1)	58	(+12)
811 Learning Disability	174	166	(-8)	156	(-10)	189	(+33)
820 Speech and Language	74	78	(+4)	83	(+5)	79	(-4)
825 Visual Disability	2	2	(0)	3	(+1)	3	(0)
830 Emotional Disturbance	168	168	(0)	169	(+1)	149	(-20)
SPECIAL EDUCATION TOTAL	610	601	(-9)	550	(-51)	573	(+23)
GRAND TOTAL	2870	3014	(+144)	3037	(+23)	3270	(+233)

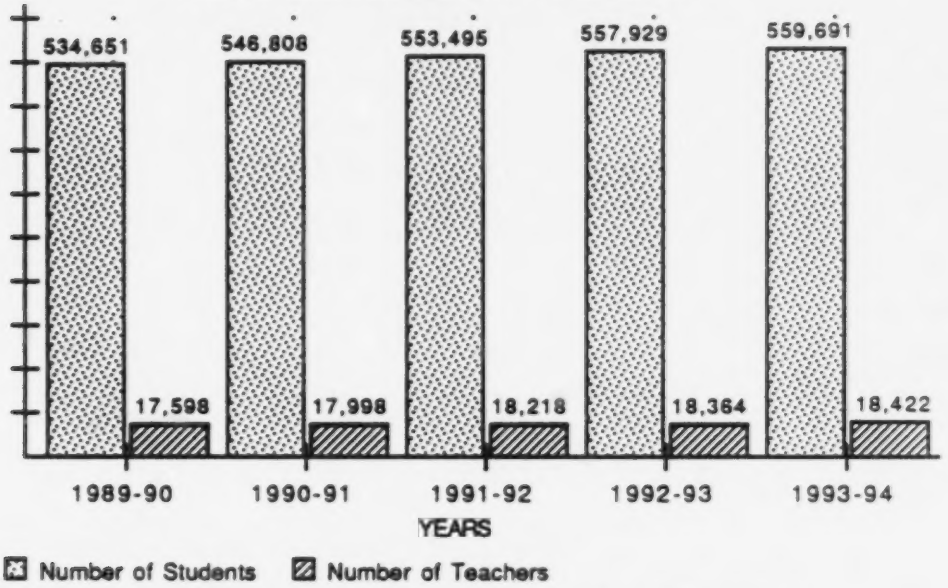
Source: Wisconsin Teacher Supply/Demand Project (Lauritzen, 1990) 27

*Does not include teachers on emergency licenses who transferred to a new field within a district.

D. Projecting Future Teacher Needs

The number of teachers that will be needed in future years is directly related to enrollment fluctuations. Statewide enrollment projections can be used to provide an indication of the number of teachers that will be needed. Table 8 shows these projections for elementary education in Wisconsin.

TABLE 8
PROJECTIONS FOR ELEMENTARY EDUCATION



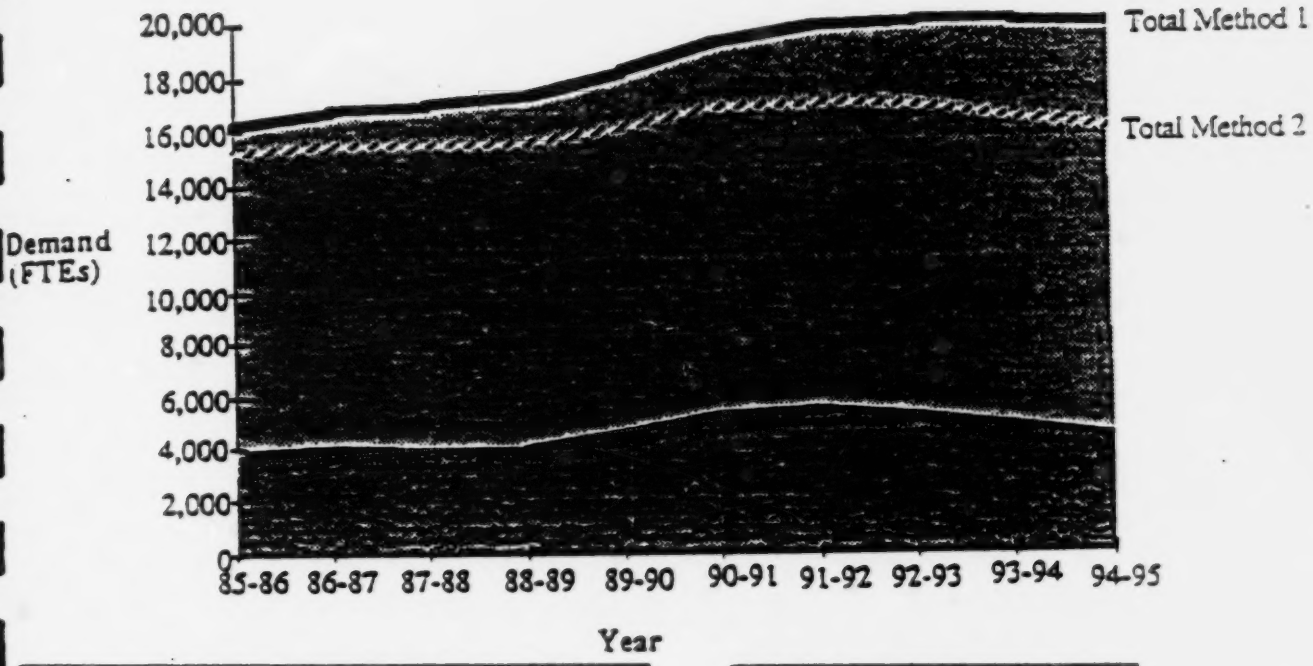
Source: Wisconsin Teacher Supply/Demand Project (Lauritzen, 1990)

These projections are based upon some assumptions. For elementary and secondary education, it is assumed that the teacher/student ratio will remain constant. Further, for any year, the attrition rate will be approximately 8%. Thus, for the 1990-91 school year, 8% of the 17,998 projected number of elementary teachers will be new hires. However, there is some reason to believe that the 8% figure will show a declining trend, following the 1990-91 school year, after which Wisconsin's early retirement window will close. A figure near 6% might be anticipated. Similar factors might affect attrition and projections in other states.

For special education, the 1988-89 data indicate that 8.69% of the total enrollment (public and private) were served by special educators. This percentage was applied to the five year projections. However, an increase in the 8.69% figure might be expected due, in part, to the increasing proportion of children who are high risk. In fact, the percentage of the total enrollment served by special educators has been steadily increasing. Thus, the 8.69% figure should be regarded as quite conservative. In the area of attrition, the field of special education has run ahead of regular education. Given the current downward trend in special education attrition, a figure of approximately 10% seems reasonable. Thus, 10% of the number of teachers projected for a given year would be newly hired teachers.

A second example (Table 9) shows a similar projection for the state of California.

TABLE 9
TOTAL TEACHER DEMAND (FTEs)
DUE TO ENROLLMENT GROWTH AND ATTRITION



Summary of Total Demand Due to Growth and Attrition

	Method 1	Method 2
K-8 through 1989-90	69,102	63,428
9-12 through 1989-90	15,950	13,914
K-12 through 1989-90	85,052	77,342
K-8 through 1994-95	141,599	123,346
9-12 through 1994-95	41,761	35,397
K-12 through 1994-95	183,360	159,743

State retirement records indicate that attrition has declined over the past seven years. Nonetheless, 77.6 percent of total demand through 1989-90 is due to attrition. Attrition and retirements were projected by two methods:

1. Using the mean of the annual rates of attrition for the last seven years from the state retirement data base (Method 1).
2. Using the trend (from a linear regression) of these rates of attrition from the state retirement data base (Method 2).

Source: PACE: Policy Analysis for California Education (Guthrie & Kirst, 1989)

Supplemental Information

The model to assess personnel needs presented in this manual takes into account the variables that affect its market-generated outcomes. This does not imply that factors such as teacher retirement, attrition, geographic restriction, and the support of educational programs are not important in understanding the changes taking place in the field. This section will present the methodology for assessing select areas that impact on the market-generated new hires model.

A. Active Reserve Pool

The active pool of teachers encompasses all the teacher candidates who are actively seeking employment in the field of education. Some states (e.g., Connecticut and California) include assessment of this pool in their supply/demand studies using survey data. Another approach is to study the applications that are submitted to school districts when openings occur. The latter approach provides a variety of critical information about the supply of teachers in any given area. For example, Table 10 contains data collected from applications for elementary teaching positions in a small, suburban district in Texas.

TABLE 10
PROFILE OF TEXAS ELEMENTARY TEACHER APPLICATIONS

DESCRIPTION	DISTANCE FROM TRAINING INSTITUTION		
	0 to 25 miles	26 to 50 miles	Over 50 miles
23 Elementary Teaching Positions	18	22	74
	DISTANCE FROM HOME TOWN		
114 Applicants	0 to 25 miles	26 to 50 miles	Over 50 miles
	41	6	67
73=Female			
41=Male	CERTIFICATIONS HELD		
	Not Certified	1	2	3	+3
49=In State	0	76	31	6	1
65=Out of State					

STATUS				
Not Teaching	Currently Teaching	Substitute Teaching	Teacher Aid	Private Sector
105	5	1	3	0

EXPERIENCE			
None	1-5 Years	3-5 Years	6-10 Years
39	26	21	18

11-15 Years	16-20 Years	+20 Years
4	4	1

Source: CSPD Federal Project (Lauritzen, 1990)

This methodology provides detailed information on such factors as the geographic restriction, certification status, employment status, and experience level of those actually seeking teaching positions.

In addition, telephone follow-up interviews can be conducted on a random

sample of the applicants focusing on factors such as current employment status, total number of applications submitted, geographic restrictions, and future plans.

There are limitations inherent in this approach. Using this technique on a large scale would be costly and time consuming. The cooperation of districts can also be problematic. Information can be gathered on only the certification areas where there are, in fact, vacancies in a district. However, the information in Table 10 would likely be indicative of other districts similar to this one. Therefore, a sampling of districts (rural, suburban, and urban) would likely provide information that could be generalized to districts with similar demographics to those sampled.

B. Follow-up Studies

Follow-up studies can be carried out in a variety of ways. They provide a source of information that can best be obtained by this type of research. Follow-up studies can be expensive if sampling procedures are not followed. Two types of follow-up studies using the Wisconsin data are presented below.

1) Follow-up Survey of Newly Trained Teachers

The follow-up survey described in this section is a recommended option that provides information to supplement computer-generated data that can not be obtained by other means. The survey offers an alternative method of collecting information on the employment status of newly certified teachers prepared in-state.

The teacher training institutions are asked to supply a list of names of all their newly prepared/certified teachers completing their program between July 1 and June 30 of the previous year. From this state pool of newly certified teachers, a random sample is selected. In certification categories in which the total number of teachers is small, the entire category should be included. In large categories, the size of the sample should be related to the number of individuals completing certification. For further information on drawing random samples, consult Borg and Gall (1989), Education Research: An Introduction, or a similar resource on research design. After the sample is selected for the follow-up, training institutions are again contacted to obtain locator information on the selected teachers. Those selected in the random sample are sent a cover letter and survey instrument. If they do not respond by the given deadline, they are followed up by a telephone version of the questionnaire.

Previous research has shown that teachers have very high attrition rates during their first five years of teaching. Due to the high turnover rate of this group of teachers and their unique inservice needs, it is recommended that the sample of teachers be followed for each year of a four year cycle. It is also recommended that an independent body conduct the follow-up to eliminate errors of institutional reporting. This data collection activity can be successfully contracted out to an IHE. When training programs or placement offices conduct their own surveys, it may be in their best interest to show high employment rates for their graduates. Furthermore, the procedure recommended in this manual provides common definitions and assures a consistent format for reporting information. The data obtained provides a statewide profile of the employment status, as well as inservice and preservice needs of newly trained teachers.

The most important feature of this survey is the employment profile that it yields. This includes the number actually teaching in their area of

preparation, the number who leave the state, the number who work outside of education, the number not seeking employment, and the number who obtain employment in education outside their area of preparation. It is impossible to make an accurate determination of teacher supply without ascertaining what percentage of newly prepared teachers actually remain in their home state to teach in their area of preparation.

This survey provides an opportunity to determine perceived training needs of newly prepared teachers. Questions about salary, how many years they intend to remain in teaching, and satisfaction/ dissatisfaction can also be included. This group may be surveyed over a period of years to determine continued training needs, changes in attrition rates, salary, and other pertinent information required to answer questions about the status of teaching. In addition, this survey can be used to investigate both the satisfying aspects of the teaching profession, as well as those factors that contribute to teacher dissatisfaction.

Table 11 is an example of the presentation of this information in the field of special education.

TABLE 11
EMPLOYMENT PROFILE OF SAMPLE OF NEWLY CERTIFIED SPECIAL EDUCATION TEACHERS

	Hearing Impaired		Early Childhood		Emotional Disturbance		Learning Disability		Mental Retardation		Speech/Language		TOTAL	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
In Area of Certification in state	3	30	23	56	26	70	28	65	24	62	24	26	128	60
In Area of Certification out state	1	10	4	10	5	14	5	12	4	11	6	15	25	12
In General Education	1	10	4	10	0	0	2	5	4	11	0	0	11	5
In Other Area of Special Education	2	20	6	15	2	5	0	0	8	23	0	0	18	9
Continuing Education	0	0	1	2	1	3	1	2	0	0	2	5	5	2
Unemployed or Raising Family	2	20	2	4	2	7	3	9	2	6	0	0	11	5
Employed with Handicapped out of Education	1	10	0	0	0	0	2	5	0	0	7	18	10	5
Employed not with Handicapped out of Education	0	0	1	2	1	3	1	2	1	3	0	0	4	2
# RETURNS	10		41		37		42		43		39		212	
TOTAL SAMPLE	14		50		50		50		50		50		264	

Source: Federal CSPD Special Project (Lauritzen, 1989)

STEPS IN DATA COLLECTION

1. Request from each teacher preparation program a list of names of each student completing a certification program during the prior year (July 1-June 30).
2. Using random numbers, draw a sample from each certification category. (Sample size depends on the number completing programs.)
3. Request address, phone number, and parent's address from each teacher training institution of those graduates selected in the sample.
4. Telephone teacher training institutions not responding to request locator information.
5. Contact parents or alumni associations for addresses not available from teacher training institutions. Parents are often easier to locate and they will usually provide needed information.
6. Send survey to random sample with cover letter including deadline.
7. Telephone those not responding after deadline has passed.
8. Develop table to reflect number and percent in each employment category.

2) Compilation of Placement Office Reports

This approach to obtaining follow-up data on recent program graduates involves requesting the placement office data from each teacher training program in the state. Requests are made to supply the information following a consistent format. This approach to collecting follow-up data is cost effective but may lack accuracy if some programs fail to collect and provide the data. An example of this approach is shown in Table 12.

TABLE 12
POSITIONS OBTAINED BY SUBJECT FIELD
1988-89

	Teaching in Wisconsin Public Schools Full-Time	Teaching Out of State Full-Time	Teaching in Private Schools In Wisconsin	Teacher Aide or Substitute	Working in Child Care Centers In Wisconsin	Other	Total Registered with Placement Office
Elementary Ed./ Early Childhood	152(24%)	73(11%)	49(8%)	113(18%)	30(5%)	223(35%)	640
English	17(22%)	10(13%)	7(9%)	23(30%)	0	19(25%)	76
Foreign Language	11(41%)	4(15%)	0	0	0	12(44%)	27
E.S.L.	1(33%)	1(33%)	0	1(33%)	0	0	3
Math	22(48%)	6(13%)	4(9%)	0	0	14(30%)	46
Music	18(30%)	3 (5%)	1(2%)	4(7%)	0	35(57%)	61
Art	7(18%)	6(15%)	0	8(20%)	0	19(48%)	40
Physcial Ed.	17(26%)	3 (5%)	3(5%)	11(17%)	0	32(48%)	66
Science	13(18%)	12(17%)	0	16(23%)	0	30(42%)	71
Social Studies	14(16%)	10(11%)	3(3%)	25(28%)	0	38(42%)	90
Bus./ Dist. Ed.	11(48%)	0	0	1(4%)	0	11(48%)	23
Drivers Ed./Safety	19(26%)	5 (7%)	0	7(10%)	0	42(58%)	73
Special Ed.	43(51%)	7 (8%)	3(4%)	2(2%)	0	30(35%)	85

Source: Wisconsin Teacher Supply/Demand Project (Lauritzen, 1990)

C. Teacher Attrition Studies

Computer analysis of the state's employment file provides the opportunity to do a variety of teacher attrition studies. Caution is advised; the length of computer runs can be considerable with this analysis.

1) State Attrition

This attrition figure shows the extent of teacher loss on a state wide basis. This figure would not include teachers who move from one district to another within the same state. Calculation of state attrition involves comparing the state's teacher employment file from the past year with the current file to identify the number of teachers who left teaching in the state by certification category.

The number of teachers who left in each category by age is then divided by the total number of teachers in that category who were employed the previous year. It is also possible to combine the total categories within a field to look at the comparable rates in elementary education, secondary/specialty fields, and special education. It is recommended that an attrition study be done on teachers with emergency licenses to measure the turnover rate of less-than-fully-prepared teachers. Figures 7 through 10 are examples of the type of information that can be obtained with this analysis.

Figure 7
Elementary (K-8)

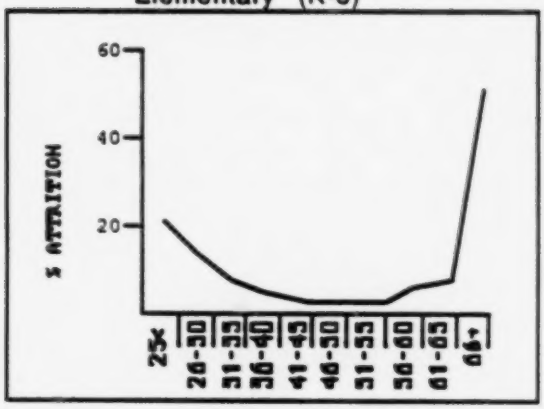


Figure 8
English

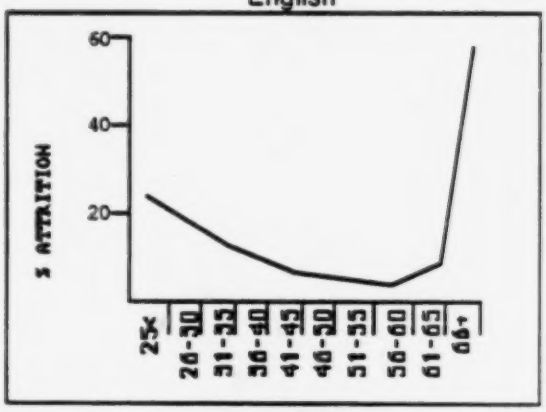


Figure 9
Math

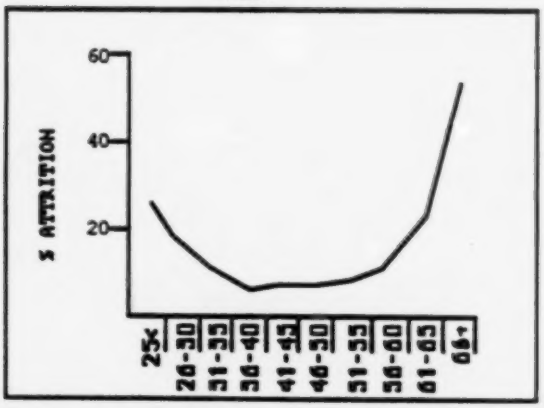
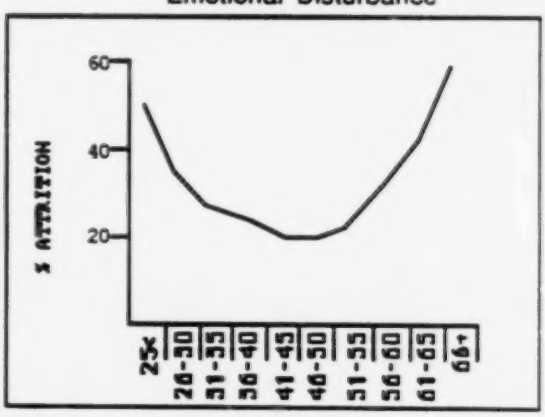


Figure 10
Emotional Disturbance



Source: Federal CSPD Special Project (Lauritzen 1989)

Table 13 is an example of longitudinal attrition data on Michigan Special Education Teachers.

TABLE 13
RETENTION OF SPECIAL EDUCATION INSTRUCTIONAL AND ANCILLARY PERSONNEL: MICHIGAN, 1980-89

Cert/Endorse. Areas/Codes*	SCHOOL YEAR 1980-81	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88
Mentally Imp. (110-130/SA-ST)	2,187 59%	2,192 63%	2,278 67%	2,406 69%	2,612 76%	2,759 78%	2,975 84%	3,361 91%
Emotionally Imp. (140/SE)	1,105 59%	1,139 63%	1,184 65%	1,282 69%	1,480 73%	1,681 77%	1,871 83%	2,145 90%
Learning Dis. (150/SM)	1,664 77%	1,753 81%	1,828 79%	1,973 81%	2,180 85%	2,350 87%	2,542 91%	2,852 93%
Hearing Imp. (160/SL)	269 56%	278 60%	278 62%	291 67%	316 74%	325 76%	341 81%	381 91%
Visually Imp. (170/SK)	101 59%	100 67%	106 70%	112 72%	116 80%	119 82%	133 89%	143 92%
P.O.H.I. (180/SC)	181 63%	175 66%	177 68%	189 72%	204 74%	211 77%	231 87%	260 95%
Sp./Lang. Imp. (290/SB)	1,077 68%	1,057 73%	1,045 75%	1,102 78%	1,158 81%	1,222 83%	1,265 88%	1,435 92%
TC/Ment'l Imp. (210/SU)	179 64%	188 74%	200 71%	199 69%	209 75%	213 77%	199 88%	222 97%
Homebound/Hosp. (280/SH)	45 30%	46 45%	47 53%	51 63%	50 64%	49 70%	54 78%	59 84%
TC/P.O.H.I. (SI)	52 48%	51 51%	52 61%	51 60%	58 74%	60 83%	57 88%	62 93%
Sch. Psych. (SF,SG)	476 61%	474 64%	481 61%	503 77%	529 82%	555 84%	590 88%	663 92%
Social Worker (SD)	598 59%	566 66%	549 69%	585 72%	634 78%	668 81%	748 89%	862 94%
Occ/Phy Ther. (NU)	196 59%	199 64%	213 69%	227 71%	264 78%	281 82%	317 88%	372 90%
TOTALS	8,130 63%	8,218 67%	8,438 70%	8,971 73%	9,801 78%	10,493 81%	11,323 86%	12,797 92%

Interpretation: Of the 12,980 (Table 1) personnel totals in 1980-81, 8,130 or 62.6% were still employed in the same assignments in 1988-89.

Source: State of Michigan Department of Education (Baxter & Gomez, 1990)

2) District Attrition

The district attrition figure shows the extent to which teacher turnover impacts on local school districts. The only difference between this calculation and the state attrition rate is that teacher movement between districts within the state is included in this rate. A comparison of the district attrition to the state attrition will identify the number of teachers transferring between districts.

The method of calculating attrition by district is the same as previously described for state-level attrition in that loss of teachers from each school district in the state is determined. With this procedure, it is possible to identify individual districts with unusually high or low attrition rates.

Figure 11

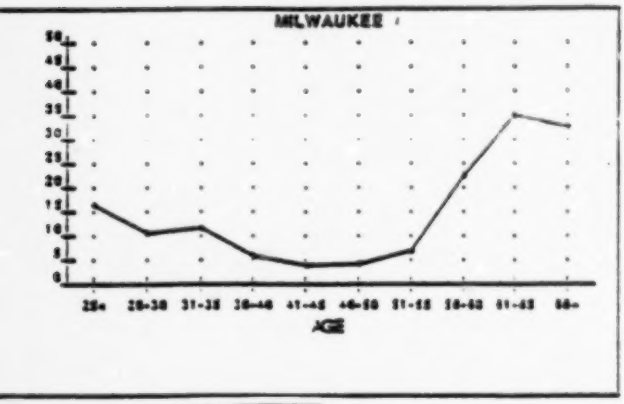
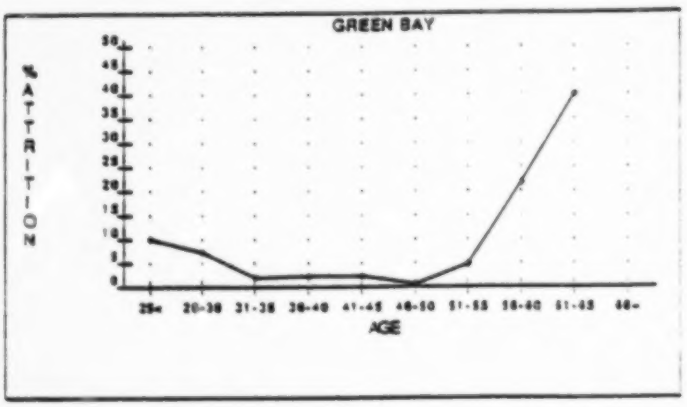


Figure 12



Source: Wisconsin Handicapped Needs Assessment Project (Lauritzen, 1990)

3) Regional Attrition

Most states are divided up into different regions for administration purposes. Table 14 shows the variance in attrition in the different regions in Kansas special education fields.

TABLE 14
SPECIAL EDUCATION PERSONNEL ATTRITION BY GEOGRAPHICAL REGION: KANSAS, 1988-89

Region*	Employed	Lost	%
1	255	39	15
2	350	56	16
3	348	52	15
4	666	91	14
5	738	104	14
6	388	69	18
7	1037	121	12
8	785	109	14
9	410	59	14
Total	4977	700	14

Source: McKnab, 1989

4) Attrition by Level

A similar analysis by level for Kansas special education programs is shown in Table 15.

TABLE 15
SPECIAL EDUCATION PERSONNEL ATTRITION
FOR 1988-89 BY LEVEL OF INSTRUCTION

LEVEL	Employed	Lost	%
Preschool	186	26	13.9
Primary	429	57	13.2
Intermediate	141	17	12.1
Junior High	348	39	11.2
Senior High	491	61	12.4
Preschool/Primary	2	1	50.0
Primary/Intermediate	1113	161	14.5
Intermediate/Junior High	292	46	15.7
Junior High/Senior High	458	60	13.1
All Levels	1517	232	15.3
Total	4977	700	14.1

Source: McKnab, 1989

D. Geographical Analysis

This section of the manual will present several different approaches for evaluating the quality/type of educational services provided to students in various regions of the state. Adoption of these procedures allows reconciliation of each state's unique service delivery system and geographical patterns.

1) Comparison of urban/rural areas

This analysis identifies significant differences in services provided to children in cities versus services provided in rural areas. A variety of problems can be studied with this approach such as the drop-out rate, proportion of emergency licenses issued, proportion of handicapped children served by disability, and pupil achievement. Previous research has shown significant differences in these comparisons.

In carrying out this comparison, the larger city districts are separated from those that are rural. The selection of city districts should be based on the fact that their size is such that they would not consolidate with other small towns. This results in a clearer separation of rural and urban districts. Another method to verify this separation of rural and urban areas is to divide the city population into the pupil population of the district. Those districts with a low proportion would be considered urban since the population of consolidated town and rural areas would not contribute to the city population total.

2) Geographical Regions

Most states have some form of regional service agency that divides the state into various administrative units. The analysis of data between these regions can show large differences in such variables such as the

incidence of handicapped children served and the proportion of emergency licenses issued.

The methodology for comparing the incidence of children served by disability in the different service regions of a state is described. The procedure for this calculation appears very complex, but actually involves no more than a few steps of division. Figure 13 is a diagram of the steps for the calculation.

FIGURE 13

SERVICES PROVIDED TO CHILDREN WITH DISABILITIES BY REGION

$$\frac{\dfrac{\text{Total Number of Children in a Category in a Region}}{\text{Total Pupil Population in a Region}} - \dfrac{\text{Total Pupil Population in a Category in the State}}{\text{Total Pupil Population in the State}}}{\dfrac{\text{Total Pupil Population in A Category in the State}}{\text{Total Pupil Population in the State}}} = \text{Percentage of Students Above or Below State Average Incidence For a Category}$$

STEPS IN DATA COLLECTION

1. Identify the total population of each category of children being investigated in each region of the state. Identify the total pupil population in each region. By dividing the total number of children in a category in a region by the total pupil population in a region, the proportion of children by each category in each region is calculated.

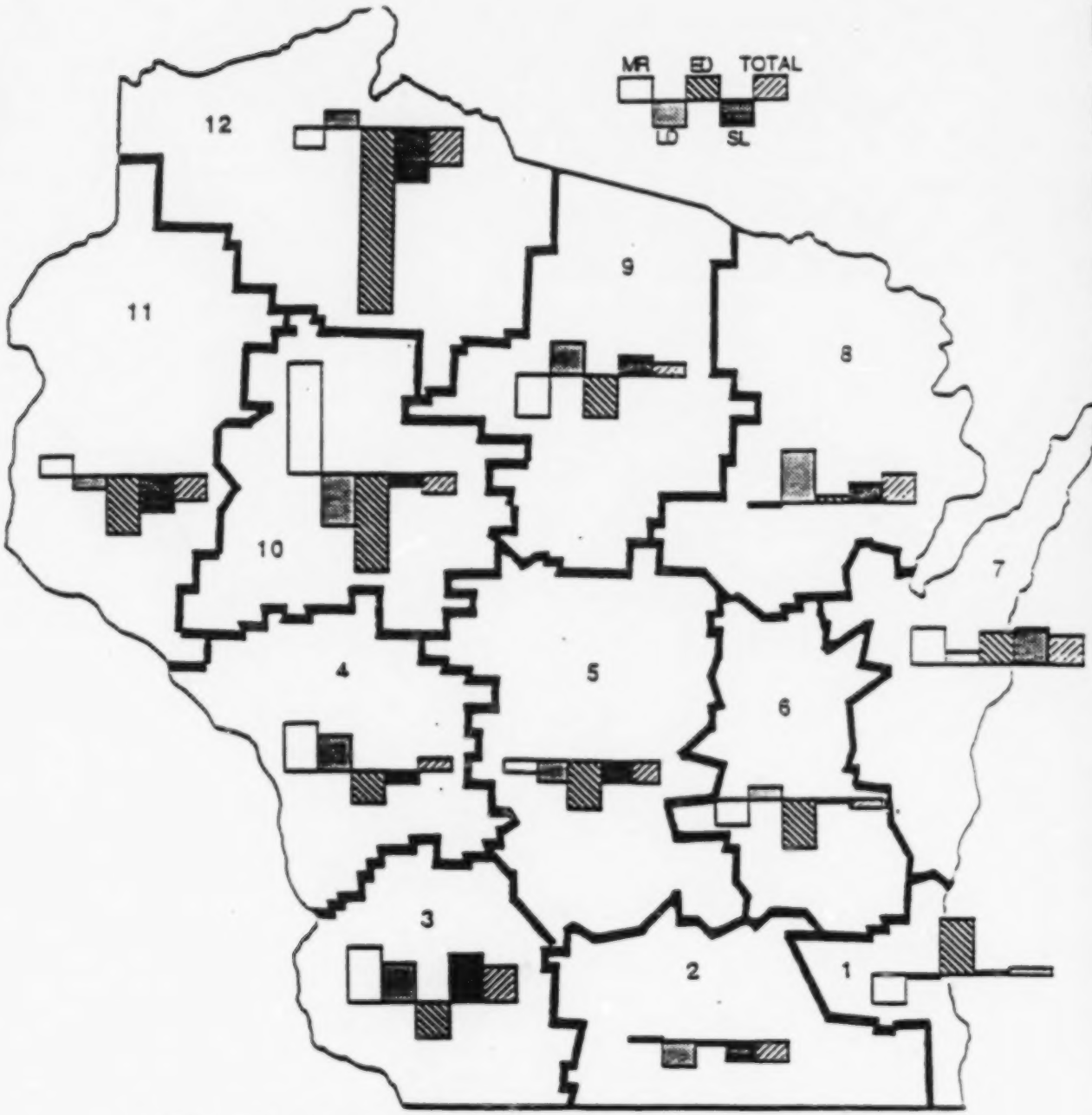
2. Identify the total population of each category of children being investigated in the state. Identify the total pupil population in the state. Calculate the proportion of children in the category in the state by dividing the total pupil population in the category in the state by the total pupil population in the state.

3. Compare the proportion obtained for a region with the statewide proportion by subtracting (2) from (1). The result of this difference is a measure of the discrepancy between the extent of services offered in that region and the statewide average.

4. Determine the percentage of services provided in the region in relationship to the statewide average by dividing the discrepancy (i.e., result of step 3) by the percent of services in the total pupil population (i.e., result of step 2).

Figure 14 is a graphic representation of the data obtained in Wisconsin. An example of the type of data obtained is presented in Table 16.

Figure 14
COMPARISON PROPORTION OF SPECIAL EDUCATION SERVICES
PROVIDED IN EACH CESA GEOGRAPHICAL AREA



NOTE: The bar graph represents the percentage of services provided in relation to the state average (either above or below).

Source: Comprehensive Assessment of Service Needs for Special Education in Wisconsin (Lauritzen, 1989)

TABLE 16
SERVICES PROVIDED TO STUDENTS WITH HANDICAPS BY CESA

CESA		MR	LD	ED	SL	Total	Total Pupil Enrollment
1	* N	3,054	9,572	4,561	11,557	28,744	239,293
	** P	1.28	4.00	1.91	4.83	12.01	
	*** D	-.14	-.03	+.36	+.07	+.25	
	**** PC	-10	-1	+23	+1	+2	
2	N	1,642	4,182	1,735	5,071	12,630	113,730
	P	1.44	3.68	1.53	4.46	11.11	
	D	+.02	-.35	+.02	-.30	-.65	
	PC	+1	-9	-1	-6	-6	
3	N	397	1,081	309	1,294	3,081	23,118
	P	1.72	4.68	1.34	5.60	13.33	
	D	+.3	+.65	-.21	+.84	+1.57	
	PC	+21	+16	-14	+18	+13	
4	N	574	1,534	455	1,532	4,095	33,408
	P	1.72	4.59	1.36	4.59	12.26	
	D	+.30	+.56	-.19	-.17	+.50	
	PC	+21	+14	-12	-4	+4	
5	N	704	1,935	683	2,287	5,609	50,919
	P	1.38	3.80	1.34	4.49	11.01	
	D	-.04	-.23	-.21	-.27	-.75	
	PC	-3	-6	-14	-6	-6	
6	N	1,086	3,520	1,127	3,983	9,716	84,178
	P	1.29	4.18	1.34	4.73	11.54	
	D	-.13	+.15	-.21	-.03	-.22	
	PC	-9	+4	-14	-1	-2	
7	N	1,166	3,068	1,269	3,919	9,422	72,904
	P	1.60	4.21	1.74	5.38	12.92	
	D	+.18	+.16	+.19	+.82	+1.16	
	PC	+13	+4	+12	+13	+10	
8	N	334	1,142	377	1,218	3,071	23,848
	P	1.40	4.79	1.58	5.11	12.88	
	D	-.02	+.76	+.03	+.35	+1.12	
	PC	-1	+19	+2	+7	+10	
9	N	406	1,529	441	1,750	4,126	34,003
	P	1.19	4.50	1.30	5.15	12.13	
	D	-.23	+.47	-.25	+.39	+.37	
	PC	-16	+12	-16	+8	+3	
10	N	723	1,233	404	1,756	4,116	37,907
	P	1.91	3.25	1.07	4.63	10.86	
	D	+.49	-.78	-.48	-.13	-.90	
	PC	+35	-19	-31	-3	-8	
11	N	660	1,859	518	1,775	4,812	43,007
	P	1.53	3.86	1.20	4.13	10.72	
	D	+.11	-.17	-.35	-.83	-1.04	
	PC	+8	-4	-23	-13	-9	
12	N	247	788	138	703	1,876	18,542
	P	1.33	4.25	.74	3.79	10.12	
	D	-.09	+.22	-.81	-.97	-1.64	
	PC	-6	+5	-52	-20	-14	
TOTAL		10,393	31,243	12,017	36,845	91,098	774,857
% services in relation to total pupil population		1.42	4.03	1.55	4.76	11.76	

* number of children with disabilities being provided services in each CESA, including EC, MC, & SN programs
** proportion of services provided to students with handicaps in relationship to the CESA total pupil enrollment
*** discrepancy between the proportion of services provided in that CESA and the state average
**** percentage (above or below) state-wide average of services provided to students with handicaps

Source: Comprehensive Assessment of Service Needs for Special Education in Wisconsin (Lauritzen, 1990)

CHAPTER IV
INSERVICE

Assessment of Inservice Needs

This manual briefly summarizes and highlights the important aspects of inservice assessment and training. A number of excellent resources are available in this area, making duplication here unnecessary. The unique nature of individual states' delivery systems of inservice programming also makes development of a single procedure difficult.

The first step in developing a comprehensive plan for addressing inservice needs should be to establish a planning committee whose responsibilities would include needs assessment, identification of objectives for inservice programs, and plans for implementation of these programs. Committee activities should result in comprehensive plans for staff development.

The planning committee should include representatives from the fields of general and special education. Members on this committee should include representation from school boards, superintendents, education administration, supportive services personnel, parents, and teacher trainers. Committee members may be identified by election of peers, volunteering, or appointment by the SEA.

The first function of the committee should be to determine the needs in target populations. As the basis of this review, assessment instruments should be developed. These assessment instruments could include surveys of questionnaires; interviews with teachers, parents, etc.; group discussions; and/or observation. Sample assessment forms are available from sources such as the PANAMS Project (Planning a Needs Assessment Management System).

Those targeted for needs assessment could include general and special education teachers and administrators, psychologists, speech/language clinicians, school counselors and social workers, parents, volunteers, foster parents, vocational educators, paraprofessionals, and any others responsible for providing services to students.

The planning committee is then responsible for gathering assessment data, analyzing and interpreting data, and disseminating results of the needs assessment to respondents. Inservice plans are developed by the planning committee to reflect the expressed needs of the target populations.

The inservice activities should be designed so that participants can learn new techniques and methods. All plans should include goals and programs that will be implemented within a specified time frame, specific inservice objectives, long range sequence of activities (ideally 4 to 5 year plans), detailed descriptions of major workshops and activities during the first 12 to 18 months, a list of resource persons and materials to be utilized, and a budget that supports the inservice program.

Planning for implementation of the inservice programs is critical to the success of these programs. Inservice activities should be advertised and incentives should be designed so that participants will be motivated to attend and participate. Participants should be fully informed of the topic, goals, methods, times, and dates of the inservice.

Finally, methods of evaluating the inservice programs should be developed. These may be follow-up surveys, evaluation forms, interviews with participants, observation, or performance records. Evaluation of the inservice programs is the responsibility of the planning committee. The evaluation process should be ongoing to assure that the inservice plan is accomplishing its expressed goals and objectives. Evaluation should be a process that determines the value of the inservice to the participants, identifies potential problems, clarifies needs, improves activities, reinforces positive performance, and continues the needs assessment process. Effective evaluation insures program quality, professional and personal growth, and the basis for future decision making.

CHAPTER V
RESOURCES

Overview

The resources presented in this chapter were identified on the basis of recent or current federal project support in the area of teacher supply/demand. Additional individuals who had direct contact with this project are included. This selection procedure may well have omitted prominent individuals who have contributed to the understanding of the teacher personnel supply issues and inservice training needs. We apologize to those we unknowlingly may have omitted. The individuals in Table 16 are grouped to approximate their areas of expertise or current responsibilities.

TABLE 16
INDIVIDUALS WITH EXPERTISE

Attrition	Models to Project Teacher Supply	New Federal Projects
Friedman, Stephen	Boe, Erling	Davis, Larry (Project CSPD)
Gomez, Joe	Bunsen, Theresa	Bowen, Mack (Project SESPE)
Lauritzen, Paul	Friedman, Stephen	Murray, Karl (Project CEC)
McKnab, Paul	Lauritzen, Paul	
Metzke, Linda	Wilson, Jim	Regional Resource Centers
		Carlson, Larry
Inservice Training	Recruitment/Retention	Newton, Anne
Bundschuh, Ernest	Graves, Laverne	Turley, Christy Riffle
Graves, Laverne	Smith-Davis, Judy	Zeller, Dick
Murray, Karl	Prothro, Hayes	
Smith-Davis, Judy		
Ueberle, Jerrie		

Description of Resource Personnel

Erling Boe
Professor of Education
University of Pennsylvania
3700 Walnut Street
Philadelphia, PN 19104
(215) 898-5697

Erling Boe has served as a visiting scholar at the National Center for Educational Statistics (NCES) and dealt with the analysis of the National Schools and Staffing Survey. He has also worked with teacher supply/demand issues for the Office of Special Education and Rehabilitation Services (OSERS) and the Office of Bilingual Education and Minority Language Affairs (OBEMLA).

Mack Bowen
Department of Specialized Education Development
Fairchild Hall
Illinois State University
Bloomington, IL 61761
(309) 436-5415

Mack Bowen has had an extensive background in teacher training. He has worked in the Office of Special Education and Rehabilitation Services and is currently director of a federally supported special project. Project SESPE (Special Education Supply of Preservice Educators), is to be funded during 1990-93 at Illinois State University has the overall goal to identify and evaluate national information concerning the present and projected new supply of special educators and the capacity of institutions of higher education (IHEs) to prepare special educators. As such, project activities will include analysis and synthesis of information relevant to the study and validation of both new supply at the preservice level and the capacity of institutions to train personnel. Two main studies are projected to be conducted. A study will be conducted using chief state certification officers and state directors of special education to determine for each state certification authority the specific patterns and methods of special education certification, types of certification categories and the magnitude of annual certification requests. A second study will be conducted with a prototype preservice supply and capacity instrument that will be developed and piloted for use in obtaining information from IHEs concerning present and projected supply of preservice special educators who are eligible for initial certification.

Ernest Bundschuh
PANAMS Project
850 College Station Road
Athens, Georgia 30610
(404) 542 3900

Ernest Bundschuh is the director of the federally supported project PANAMS (Planning A Needs Assessment Management System). This project has developed a variety of computer scored needs assessment instruments to evaluate various populations. Instruments are currently available for special education physical education, related services personnel, and parents. Currently under development is an instrument to assess training needs of individuals working with young handicapped children.

Theresa Bunsen
Education Programs Specialist
Division of Personnel Preparation
Office of Special Education and Rehabilitation Services
United States Department of Education
400 Maryland Ave., S.W.
Washington, D.C. 20202-2651
(202) 732-1083

Theresa Bunsen is on the staff in the Office of Special Education and Rehabilitation Services (OSERS). She has responsibility for monitoring state CSPD plans and has worked with Michael Small (1989) in developing a system to project special education teachers. This system has been successfully piloted in the State of Michigan (Parshall, 1990).

Larry Carlson
Federal Regional Resource Center
314 Mineral Industrial Bld
University of Kentucky
Lexington, Kentucky 40506-0051
(606) 257-7373

The Resource Centers across the United States provide direct technical support to states and jurisdictions in their region and are resources for materials in the area of personnel needs. Larry Carlson has worked with the various Regional Resource Centers to provide technical assistance to a number of states.

Larry "Smokey" Davis
The National Association of State
Directors of Special Education
2021 K Street, N.W., Suite 315
Washington, DC 20006
(202) 296-1800

Smokey Davis is Director of Training for the National Association of State Directors of Special Education. A former state director of special education and CSPD coordinator for the Nevada Department of Education, he has an extensive background in the recruitment and training of special education personnel. He is currently project director of the NASDSE Special Project Presidents' Council in the joint training of new state directors and CSPD coordinators. He also serves as a member of the Steering Committee of the OSEP initiative on the CSPD which is being carried out in cooperation with the Mid-South Regional Resource Center.

Stephen Friedman
Dept. of Psychology
UW-Whitewater
Whitewater, WI 53190
(414) 472-5429

Stephen Friedman has worked for the past two years as the research associate and project evaluator on the federally supported CSPD Special Project. He has contributed to this manual and has been responsible for validating the statistical procedures in the new hires model. He specializes in educational measurement and statistics.

Joe Gomez, Jr.
Department of Education
P.O. Box 30008
Lansing, MI 48909
(517) 373-6488

Joe Gomez has compiled the data for the report Special Education Personnel in Michigan Public Schools, 1980-89. His analysis includes longitudinal attrition data, services by region, individuals certified by training institution, and other data points necessary to project the teacher supply based on the analysis of new hires.

Laverne Graves
Bureau of Education for
Exceptional Children
Florida Dept. of Education
Knott Building
Tallahassee, FL 32399
(904) 488-4246

Laverne Graves is an experienced CSPD coordinator who has an extensive background in inservice training and the recruitment of educational personnel. She has worked with the state of Florida recruitment program which is recognized as on of the most effective programs in this area.

Paul Lauritzen
Dept. of Special Education
UW-Whitewater
Whitewater, WI 53190
(414) 472-1660

Paul Lauritzen has for the past three years directed a federally supported special project which objectives were to develop and pilot accurate and comprehensive procedures to assess personnel needs in education. He has authored this technical manual and developed many of the procedures which are components of the new hires model. His work has involved the evaluation of various state education data to investigate their potential to use the new hires model to project their educational personnel needs.

Paul Lauritzen has for the past two years, following the new hires model, conducted the teacher supply/demand study for the state of Wisconsin. The past eleven years he has produced the Wisconsin CSPD data report on special education personnel needs. His research has also included several comprehensive teacher attrition studies, teacher career paths and the cultural factors that influence a person's employability as a teacher.

Paul McKnab
Division of Psychology and
Special Education
Emporia State University
1200 Commercial
Emporia, Kansas 66801-5087
(316) 343-1200

Paul McKnab has conducted several extensive attrition studies that have incorporated such variables as differences between geographical areas, teaching fields, and the age level taught. His longitudinal data has contributed to national projections in this area.

Linda Metzke
RFD Box 58
Concord, VM 05824

Linda Metzke is a general and special education teacher trainer who has two years experience in data analysis for the Wisconsin CSPD report and one year as the research

assistant on this federal project, assessing personnel needs in education. She has done extensive research on the causes of teacher attrition and on the variables contributing to teacher retention.

Karl Murray
Project Director
National Institute on CSPD Collaboration
The Council for Exceptional Children
1920 Association Drive
Reston, VA 22091
(703) 620-3660

Karl Murray's past experience includes assistant state director of special education and CSPD coordinator in California. He serves as president of the CSPD Caucus and will be the project director of the CEC special project. This project has a primary focus of bringing together the SEA, IHE, and LEA personnel development efforts. Working in a collaborative mode., CEC proposes, in collaboration with the National CSPD Caucus to: (1) research best practices and training models for collaborative planning and needs assessment; (2) provide two level regional (based on RRC regions) institutes for SEA/IHE/LEA and other CSPD personnel regarding collaborative planning for CSPD; and (3) disseminate significant information derived from educational research, demonstration projects, and best practices.

It is anticipated that at the end of year one, 150 persons will have received training in collaborative planning for a CSPD, thru three regional in-depth trainings. In years two and three, teams from the additional three regions will receive in-depth training and follow-up will begin in collaborative planning for a CSPD. Additionally, all states and territories will have received quarterly distribution of CSPD research, demonstration projects and best practices from throughout the United States. All grant activities will be coordinated by CEC and the grant will have a National Advisory Committee with representatives from at least the following: TED/CEC, OSEP, CASE/CEC, National CSPD Caucus, NASDSE, RRC, SEA's, LEA's, and parents.

Anne Newton
Region Laboratory for Education
Improvement for the Northeast and Islands
300 Brickstone Square Suite 900
Andover, Mass. 01810
(508) 470-0098

Anne Newton facilitates the implementation of teacher supply/demand data through the activities of the regional laboratory. She works closely with the regional teacher supply/ demand project conducted by the Massachusetts Institute for Economic and Social Research (MISER). Her work involves the removal of certification barriers which restrict teacher/administrator mobility and the improvement of the quality of education through the support of induction and other programs. The laboratory is working toward regional standards for educational personnel.

Hayes Prothro
5912 Sunshine Drive
Austin, TX 78757
(512) 452-2940

Hayes Prothro has extensive experience with state level CSPD, collaboration with director of special education, teacher training personnel and parents. He is an experienced inservice trainer for general and special education personnel and as a group facilitator. His work also includes networking, dissemination, and the planning/coordination of training events

Judy Smith-Davis
10860 Hampton Road
Fairfax Station, VA 22039
(703) 239-1557

Judy Smith-Davis designed and conducted the study and authored the report of the most comprehensive investigation of special education personnel supply/demand on a national level that has as yet been undertaken (Personnel to educate the handicapped in America: Supply and demand from a programmatic viewpoint, 1984, University of Maryland) and participated in a follow-up two years later. She has also been the editor of the Supply/Demand and Recruitment/ Retention bulletin boards and databases on SpecialNet since their inception in 1988. Since 1976, she has been closely involved in activities, publications, surveys, and projects concerning inservice, preservice, and participatory planning, and is currently working with several state departments of education on these issues. She has recently assisted the Florida Department of Education in preparation of a handbook on recruitment and retention, and will prepare a separate and different document on this topic for the California Department of Education. She is involved in independent research and has a long history of working together with CSPD Coordinators in state governments. She is also skilled in the dissemination of information and promising practices via several media, and has expertise in organization development and planned change. She is also a member of the Steering Committee of the national CSPD initiative being undertaken by OSEP in cooperation with the Mid-South Regional Resource Center.

Christey Riffle Turley
Mid-South Regional Resource Center
123 Porter Building
University of Kentucky
Lexington, Kentucky 40506-0205
(606) 257-4921

Christey Riffle Turley is assistant director of the Mid-South Regional Resource Center, which has shown leadership in addressing teacher supply/demand problems in special education. The Resource Center provides direct technical support to states and jurisdictions in their region and is a resource for materials in the area of personnel needs.

Jerrie Ueberle
Global Interactions, Inc.
P.O. Box 23244
Phoenix, Az. 85063
(602)-272-3438

Jerrie Ueberle has a varied background including experience as a state CSPD director, experience with various national level CSPD projects, participatory planning and inservice

trainer. She will be working with the CSPD special project through the CEC organization and specializes in the organization of a CSPD plan.

Jim Wilson
University of Massachusetts
At Amherst
Thompson Hall
Amherst, MA 01003
(413) 545-3460

Jim Wilson is Senior Project Analyst of the MISER federally supported project (Massachusetts Institute for Social and Economic Research), involved with the states in the North Eastern Region to project supply/demand data for teachers and assess the variables that impact on personnel needs for this area. This project uses econometric models of education labor supply and demand. Models employ a combination of duration and market analysis in dealing with personnel data. In addition, the estimated model is then coded into simulation software to allow sensitivity analyses and policy simulation.

Dick Zeller
Western Regional Resource Center
Clinical Services Building
University of Oregon
Eugene, Oregon 97403-1215
(503) 686-5641

Dick Zeller is director of the Western Regional Resource Center, which has shown leadership in addressing teacher supply/demand problems in special education. The Resource Center provides direct technical support to states and jurisdictions in their region and is a resource for materials in the area of personnel needs.

CHAPTER VI
SPECIAL EDUCATION CSPD EVALUATION MODEL

Evaluation Model

States that receive federal funding through the Education of All Handicapped Children Act (P.L. 94-142) are required to submit an annual program plan which includes procedures for the development and implementation of a comprehensive system of personnel development. The purpose of this plan is to provide a system to insure that children identified as handicapped are receiving their education from well qualified and competent individuals. This includes inservice needs of special and regular educators, parents, administrators, and support personnel. Preservice needs of special educators are a part of providing qualified personnel.

The CSPD model has the potential to satisfy several goals. It should enhance the cooperative personnel planning within the state among college and university personnel, regional and local education personnel, and the SEA so that a planning system can be developed. It should provide IHEs with a basis for advising and assigning students to majors relevant to the supply/demand for teachers. Accurate data about new trends in certification can be supplied to professionals working in the field of special education so that teachers can provide the best possible programs for their students, as well as establish a professional identity and sense of security for themselves. The CSPD section of the state program plan in the past has had limited emphasis, yet this is one section of the law that deals with the quality of education available for children with disabilities.

This project reviewed all state CSPD plans and the absence of a consistent format made it difficult to assess this program area. This is due, in part, to the fact that regulations were passed before a strong model for the CSPD report was available. Thus, an outline for a model CSPD report was designed (See Appendix A). Adoption of this outline will facilitate evaluation of these reports and provide a consistent model for data collection so that goals can be reviewed and attained.

The first step in the process of developing the model was to review current CSPD regulations (See Appendix B). The outline incorporates all areas required by the current regulations. The second step in the process was to determine information required to develop reliable data bases necessary to accurately predict supply/demand for special education personnel and enhance decision-making regarding personnel issues at the local, state, regional, and national levels. These areas were added to the outline as suggested supplemental areas.

A point system was developed to quantify the evaluation of each CSPD plan. Higher points were assigned to required areas than were assigned to supplemental areas. It should be noted that the lower points for supplemental areas do not reflect the relative importance of these areas, but the fact that these areas are not currently required in the regulations.

Results of the evaluation revealed wide discrepancies in the quality and type of information contained in these reports. If states would submit CSPD plans following a standard outline, evaluation of these plans could be improved, and the information supplied in these documents could more readily provide the information required to predict personnel needs and highlight inservice needs in special education.

REFERENCES

Baxter, J.H. & Gomez, J.R. (1990). Special education personnel in Michigan public schools 1980-89. State of Michigan Department of Education.

Guthrie, J.W. & Kirst, M.W. (1989) PACE: Policy Analysis for California Education. Berkeley, CA: Policy Analysis for California Education (PACE).

Lauritzen, P. (1990). Wisconsin teacher supply and demand: An examination of data and trends. Prepared for Wisconsin Department of Public Instruction by Wisconsin Teacher Supply and Demand Project, University of Wisconsin-Whitewater.

Lauritzen, P. (1989). Comprehensive assessment of service needs for special education in Wisconsin. Prepared for Wisconsin Department of Public Instruction by Wisconsin Handicapped Needs Assessment Project, University of Wisconsin-Whitewater.

Lauritzen, P. (1989). CSPD Special Project Report

Lauritzen, P. (1989). Educational personnel needs assessment: CSPD technical manual. Whitewater, WI: CSPD Special Project, University of Wisconsin-Whitewater.

Lauritzen, P. (1989). Wisconsin teacher supply and demand: An examination of data and trends. Prepared for Wisconsin Department of Public Instruction by Wisconsin Teacher Supply and Demand Project, University of Wisconsin-Whitewater.

McKnab, P. (1989). Attrition of special education personnel in Kansas for 1988-89. Unpublished paper.

Metzke, L. (1988). A study of the causes of teacher attrition in regular and special education in Wisconsin. Unpublished doctoral dissertation, Marquette University, Milwaukee, WI.

Parshall, L. (1990, February). A study of the special education workforce in Michigan. Unpublished paper.

Small, M.W. & Bunsen, T. (1989). Projecting the need for special education teachers: A concept paper. Washington, D.C.: Unpublished. Office of Special Education Programs.

Ward, A. (1989, October). The volume of specific types of emergency credentials in 1979-89. Commission on Teacher Credentialing, State of California.

Appendix A
OUTLINE FOR CSPD MODEL

Evaluation Points

I. Administrative — 15 points
   A. Representatives on Committee
      1. Representatives on Committee
         a. Parents
         b. General Education Teachers
         c. Special Education Teachers
         d. Teacher Trainers
         e. Administrators
         f. Other (advocacy groups, etc.)
      2. Operation/Responsibility of Advisory Groups
         a. Frequency of meetings
         b. Activities and responsibilities of committee
         c. Source of funding for group activities
         d. Adequacy of funding

II. Critical Areas-Teacher Availability — 25 points
   A. Current Teacher Supply
      1. Current Teacher Supply
      2. Number Needed by Category
      3. Number of Personnel Requiring Retraining

   B. Number of New Teachers Prepared Yearly
      1. By Institution
      2. By Category

   C. Number of Newly Trained Teachers Employed in Teaching (Employment Profile)
      1. Follow-up Survey of State Data Base

   D. Number of Teachers Employed Who Are Not Fully Certified
      1. By Category

   E. Number of Newly Hired Teachers
      1. Number Trained In-State
      2. Number Trained Out-of-State

   F. Numbers of Support Personnel

III. Supplemental Areas-Teacher Availability — 15 points
   A. Teacher Attrition Rates
      1. By Category
      2. By Age
      3. By Geographical Area

   B. Pupil/Teacher Ratios
   C. Geographical Distribution of Services
   D. Least Restrictive Placement

E. Public School Programs
F. Private School Programs
G. Higher Education
H. Vocational/Technical Schools
I. Institutions
   1. State Operated
   2. Child Caring
J. Homebound

IV. Assessment-Critical Areas — 30 points
A. Description of Assessment Process
   1. Special Education Teachers
   2. General Education Teachers
   3. Administrators
   4. Support Personnel
   5. Parents

B. Implementation
   1. Inservice for Special Education Teachers
   2. Inservice for General Education Teachers
   3. Inservice for Administrators
   4. Inservice for Support Personnel
   5. Inservice for Parents
   6. Geographical Scope of Training
   7. Staffing of Inservice
   8. Funding of Inservice/Time Frame
   9. Evaluation of Inservice

C. Preservice
   1. Areas of Training Need
   2. Target Population

D. Innovative Practices
   1. Incentives to Insure Participation
   2. Local Staff Involvement
   3. Development of Instructional Materials
   4. Dissemination of Information from Research And Demonstration Projects

E. Dissemination
   1. To Teachers
   2. To Administrators
   3. To Agencies and Organizations
   4. Training to Establish Innovative Programs and Practices
   5. Reassessment of Current Practices

V. Technical Assistance — 5 points

VI. Evaluation Procedures — 10 points

Appendix B
EVALUATION MODEL FOR CSPD PLANS

This evaluation model provides a basis for the qualitative assessment of the CSPD sections of each state's program plan mandated by P.L. 94-142. The evaluation model includes critical areas of common data collections so that a national picture of personnel needs in special education can be determined. This model is comprehensive since all areas relevant to personnel needs are included in the data base. The model provides for collection of both current and longitudinal data that allow each state to examine its entire special education program. Those areas stipulated by the regulations are identified. The 100 point scoring system is weighted according to the importance of each section. At this time the model is intended to be used as a standard for the improvement of state CSPD plans. Furthermore, it is hoped that this model will allow regulations governing CSPD plans to be strengthened and revised to require the information necessary to develop quality teacher training and inservice programs. The goal for this evaluation model is to insure that children with exceptional educational needs receive the highest quality of educational services.

I. ADMINISTRATIVE VARIABLES

A. State advisory committee for CSPD activities

RATIONALE: Mandated by Federal Regulation Code 34(34CFR) section 76.101(e)(3)(ii), 300.381(b), 300.38(f)(7), and 300.387. Although all states are required to have advisory committees, states with small populations may be allowed to use their state special education advisory committee for this purpose.

1. Committee based on state size
2. Representation on committee
   a. parents
   b. general education teachers
   c. special education teachers
   d. teacher trainers
   e. administrators
   f. other (e.g., advocacy groups)
3. Frequency of meetings/time device to advising and evaluation of reports

TIMELINE: Within the three year cycle

JUSTIFICATION: An ongoing advisory committee will ensure quality reports.

B. Funding for state CSPD report

RATIONALE: Adequate funding for the state CSPD report is necessary if meaningful, high quality data is to be provided. Funding should show a relationship between the amount of federal expenditures, inservice needs, and the size of the population with disabilities.

1. Adequacy of budget relative to the size of the state
2. Source of funding for CSPD activities

TIMELINE: Yearly

JUSTIFICATION: This is necessary for accurate and comprehensive CSPD plans.

II. SUPPLY OF NEWLY TRAINED TEACHERS

A. Current teacher supply

1. Number currently teaching
2. Number needed by category
3. Number of personnel requiring retraining

RATIONALE: Mandated by 34CFR section 300.382(c).
TIMELINE: Yearly
JUSTIFICATION: Yearly data provides a basis for longitudinal assessment.

B. Number of new teachers prepared yearly by teacher training institution/certification category
RATIONALE: Mandated by 34CFR section 300.382(b)(1), 300.382(c), and 300.383. The number of newly trained teachers is essential for determining if a sufficient number of qualified personnel are being trained to provide appropriate educational services to students with exceptional educational needs.

TIMELINE: Yearly
JUSTIFICATION: Yearly data provide a basis for longitudinal assessment of trends in teacher supply and demand.

C. Number of newly trained teachers employed in teaching (employment profile)
RATIONALE: Longitudinal follow-up studies of newly certified teachers provide information on inservice needs, teacher satisfaction, and current employment status. Follow-up studies also show the proportion of newly prepared teachers who actually enter the field to teach students with handicaps. This information provides initial attrition data as well as information about the climate of the field of special education.

TIMELINE: Yearly
JUSTIFICATION: The cost of gathering this data yearly is prohibitive.

D. Number of teachers employed who are not fully certified
RATIONALE: Mandated by 34CFR section 300.382(b)(1). The number of teachers certified on a temporary basis license provides an indication of: (1) which areas in special education have the greatest need for trained personnel, and (2) how critical the shortage is in each disability category. The number of emergency licenses issued for general education would be of value for the purposes of comparison.

TIMELINE: Yearly
JUSTIFICATION: Yearly data allow for longitudinal studies of need for trained teachers in each area.

E. Number of newly hired teachers
1. Number trained in-state
2. Number trained out-of-state

RATIONALE: This information provides state with the data required for the formula used to project training needs.

TIMELINE: Yearly
JUSTIFICATION: Longitudinal studies and trends require yearly data collection.

F. Related services/support personnel trained
RATIONALE: Mandated by 34CFR section 300.382(b)(1) and 300.382(c). The number of support personnel providing related services as defined in 300.13 is essential to determine the overall quality of services provided to students with disabilities.

TIMELINE: Within the three year cycle
JUSTIFICATION: Although longitudinal data in this area would provide additional information, the cost of yearly assessment is not justified.

III. SUPPLEMENTAL

While federal regulations do not mandate the following components, these components provide information critical to a comprehensive assessment of personnel in special education. Unless attrition rates and pupil/teacher ratios are known, the actual quality and availability of services provided to special needs students cannot be determined. The number of newly trained teachers, without data on current employment and attrition, does not provide an accurate picture of personnel supply and demand.

A. Attrition
RATIONALE: Attrition information is an important variable in the identification of future personnel needs in special education, allowing sufficient numbers of future teachers to be recruited and trained in order to maintain quality service delivery to students with special needs. Furthermore, this information provides critical data about the stability of teachers in special education. In addition, a study of the causes of attrition identifies current conditions in the field that can be ameliorated to retain qualified personnel.

TIMELINE: Within the three year cycle
JUSTIFICATION: The cost of gathering this data yearly is prohibitive.

B. Pupil/Teacher ratios (including number of F.T.E. certified teachers) in relationship to the number of special education students served
RATIONALE: Student/teacher ratios are an indication of the quality of services provided to students with special needs and the implementation of individualized instruction as mandated by P.L. 94-142.

TIMELINE: Within the three year cycle
JUSTIFICATION: This information is relatively stable over a three year period.

C. Distribution of services to handicapped children by geographical area
RATIONALE: Studies have shown that the quality of services may be dependent on the geographical area in which the student lives. Attrition rates are often higher in rural areas, creating another service delivery issue.

TIMELINE: Within the three year cycle
JUSTIFICATION: Without information about service delivery in relation to geographical areas it is difficult to monitor the quality of services in rural areas.

D. Least restrictive placement
RATIONALE: Mandated by P.L. 94-142 that students be placed in the least restrictive environment. This component gives information about the proportion of students mainstreamed, in integrated special classes, in segregated programs, and in institutional programs.

TIMELINE: Within the three year cycle
JUSTIFICATION: Without this information it is impossible to assess whether or not students are being served in the least restrictive environment.

E. Services
RATIONALE: This component provides comprehensive information about various service delivery institutions from birth through 21. This information is pertinent in assessing the availability of special education services in both public and private sectors. Trends in number of children served impacts on personnel needs.

1. Public schools
   TIMELINE: Yearly
2. Private schools (Elementary and secondary day schools)
   TIMELINE: Within the three year cycle
3. Vocational/Technical schools (State operated post secondary)
   TIMELINE: Within the three year cycle
4. Higher education (Public and private colleges
   TIMELINE: Within the three year cycle
5. Homebound instruction (Students provided instructional services at home)
   TIMELINE: Within the three year cycle
6. Institutions
   a. State operated
   b. Child caring (Residential treatment centers that serve handicapped children with indirect state financial support)
   TIMELINE: Within the three year cycle
   JUSTIFICATION: This information is needed in order to accurately predict the number of teachers needed to serve in each categorical area.

IV. ASSESSMENT/CRITICAL AREAS

RATIONALE: Mandated by 34CFR sections 300.382(e), 300.382(f)(1), (2), (3), and (4). An assessment of training needs provides an insight into the quality of teacher training programs. Assessment of the inservice needs of general education teachers and support personnel should enhance cooperation between general education teachers and special education teachers, which will insure quality services for students with special needs. The assessment of parent needs provides input and cooperation from parents.

A. Description of assessment process
   1. Special education teachers
   2. General education teachers
   3. Support personnel
   4. Parents

TIMELINE: Within the three year cycle
JUSTIFICATION: The training needs of these groups remain relatively stable over the three year period.

B. Implementation
RATIONALE: Mandated by 34CFR sections 300.382(f)(5)(i), 300.382(f)(5)(ii), 300.382(f)(6)(ii), and 300.383(b). Without implementation, the assessment of inservice needs of teachers, support personnel, and parents will not function to improve special education programs. In addition, implementation plans can serve to provide other states with information about practices that lead to quality inservice programs. Educational progress depends on the evaluation and dissemination of educational practices.

1. Special education teachers
2. Inservice for general education teachers
3. Inservice for support personnel
4. Inservice for parents
5. Delivery of inservice by geographical area
6. Methods used to staff inservice
7. Sources of funding for inservice
8. Time frame for presentation of inservice programs
9. Evaluation of inservice

TIMELINE: Yearly
JUSTIFICATION: The listing of activities should be done during the three year cycle in order to provide an overall picture of training offered.

C. Preservice training
RATIONALE: Mandated by 34CFR sections 300.383(b) and (c).

1. Areas of training needed
2. Target populations

TIMELINE: Yearly
JUSTIFICATION: The listing of activities should be done during the three year cycle to provide and overall picture of training offered.

D. Innovative practices
RATIONALE: Mandated by 34CFR sections 300.382(e)(1), (e)(2), and (e)(3). If education is to continue to improve and meet the needs of students and society, the practices that lead to excellence in education must be presented to teachers. Research in education loses its meaning if theory is not translated and applied to practice in the classroom.

E. Dissemination
RATIONALE: Information dissemination is mandated by 34CFR sections 77.101(e)(iii) and (iv); 300.384(a) and 300.384(b)(1-3). Training components are mandated by 34CFR 76.101(e)(3)(iii) and 300.385(a)(b) and (c). Dissemination of information about innovative practices to all those who are involved with children with special needs is necessary to meet the needs of these students.

1. Information dissemination
   a. Information to teaching personnel
   b. Information to administrators
   c. Information to agencies
   d. Information to organizations
   e. Information to current practices
2. Training
   a. To establish innovative practices
   b. To utilize instructional materials

TIMELINE: Within the three year cycle
JUSTIFICATION: This activity should be ongoing during the three year cycle with appropriate groups targeted each year.

V. TECHNICAL ASSISTANCE
RATIONALE: Technical assistance by SEAs to LEAs is mandated by 34CFR 76.101(e)(3)(ii) and 300.837.

VI. EVALUATION PROCEDURES
RATIONALE: Monitoring the extent to which program objectives are being met is mandated by 34CFR 76.101(e)(3)(ii).